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Gleanings in Bee Culture



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The A. I. Root Co., Medina, Ohio

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NO. 1

EDITORIALS

IN our last issue, page 968, under the general heading of "Retrospect," and referring to the particular work done by the Agricultural College at Guelph, Ontario, we inadvertently made the statement that said station was in charge of S. T. Pettit when we should have said Morley Pettit, a son of the former, who died a few years ago.

Our Cover Picture

EXCEPT that the hives are a little different in shape from most hives used in this country it is hard to imagine that the view shown on our cover is not an apiary situated in a young apple-orchard in some one of our northern States. As a matter of fact it is a picture of an apiary in Taquary, Brazil, sent us by Emil Shenk who, for the last three or four years, has been "ambulant" teacher of bee culture of the agricultural department of the federal government. Mr. Shenk writes that Brazilian bee culture is developing very nicely, but says he regrets that so little is said in regard to that country in GLEANINGS. He expects to send from time to time an article regarding conditions there.

The Bees at the Dismal Swamp

ACCORDING to the last report, these were coming on very nicely. While it was severely cold in and about Medina, the bees were flying at our Dismal Swamp yards.

The Virginia bees will be matched up against the bees in cellars and winter cases. If we can make a fair increase in the Virginia colonies that are too weak to winter at Medina, we shall feel abundantly satisfied. In this connection we may state that it is not our intention to go in for as heavy increase as we did in Florida last winter, for we shall do considerable in queen-rearing during March and April in the Dismal Swamp.

The editor of GLEANINGS expects to make a trip to the Dismal Swamp about the 15th of January. On his return he will give a

report of what he finds from a direct inspection of every colony wintered; and when we say *colony* we mean hives with bees in them. These hives, when they went down originally, had only two, three, four, or five frames of bees—bees that had been used for supplying pound packages up to the very last minute at Medina, and which were in no condition to winter, either indoors or outdoors. We have always observed that colonies that have been used for filling orders for nuclei or queens clear up to the time of going into winter quarters are either very weak in the spring or die outright. Our Dismal Swamp experiments are to determine whether we can utilize these cripples, so to speak, and make something useful out of them next spring.

A Proposed State-wide Foul-brood Law for Idaho

As a general thing a county foul-brood law, while it is better than nothing by a long way, comes far short of a State law for getting the best results. In every State where a county law is in effect the defects of the system have been so marked that, so far as we know, these county laws have either been replaced by laws State-wide in their application or are on their way to such replacement.

Idaho has probably the best county law of any of the States in the Union; but its defects have been already noticed; and the Idaho Honey-producers' Association, the most influential organization in the State, with its headquarters at Idaho Falls, Ida., expects to present to the Idaho legislature a draft of a new State-wide bill that incorporates some of the best features in other foul-brood laws adopted by the various States.

There are fair prospects that this bill can be passed; but it will need the *united* support of *all* the beekeepers of Idaho. Those of our subscribers who desire to co-operate are requested to get in touch with

the secretary of the Idaho Honey-producers' Association, Mr. F. C. Bowman, whose post-office is Idaho Falls, Ida. Prompt action will be necessary, as the legislature meets very soon.

A Variety of Experiments in Wintering being Carried on at Medina

THIS winter we are carrying on a variety of experiments in wintering our bees. Part are wintered indoors and part outdoors. The former are in two different cellars. In one (the warehouse cellar) the temperature ranges from 40 to 45, and in the other (the machine-shop cellar) from 45 to 60. The temperature of these cellars is somewhat dependent on the temperature outside, and hence the variation. Each cellar of bees is inspected daily to ascertain the purity of the atmosphere, the temperature, and the condition of the bees so far as it can be ascertained by a squint with an electric lamp at the entrance of several of the hives. In order to determine the temperature, tested mercurial thermometers are used. We secured the best we could find, and then placed a set of them outdoors for a few days, and then inside, and those that recorded exactly alike were selected, and placed in various portions of the cellar—some near the floor, some midway, and some near the ceiling. We note that the temperature in the upper part of the cellar is always higher than when near the floor by three or four degrees.

So far, Dec. 30, the bees are wintering nicely in both cellars, with the difference a little in favor of the cooler cellar. A few days ago we brought in one yard of bees containing our finest breeding stock, with a team and bobsleds. These bees were housed in double-walled hives; but as the weather had turned very cold we desired to give these bees every possible chance, and so we brought them home and housed them in the cooler cellar. We did the same thing last year after the weather had turned severely cold, and there was good sleighing. The results were highly satisfactory. The best time in all the world to move bees from out-yards to the home cellars is when there is good sleighing. One pair of common runners for going through the woods after bees are better than a pair of bobs for moving bees. While the former will skid a little more, they will go over bumps easier.

OUTDOOR WINTERING IN QUADRUPLE WINTER CASES AND IN SINGLE INDIVIDUAL DOUBLE-WALLED HIVES.

As previously reported, we are testing out the ordinary individual double-walled pack-

ed hives alongside of hives with quadruple winter cases of the Holtermann type in the same yard. While these big cases are more expensive per colony, the bees in them are certainly showing up well. During the very coldest part of the winter, when the mercury plays around zero, with a high wind, the bees look very comfortable, and no wonder, for there are four hives in the case placed close together and with ten inches of packing all around. Very cold weather does not seem to affect the size of the clusters as it does in single hives.

Two colonies in these cases diagonally opposite each other are provided with absorbing packing above, while the two other colonies also diagonally* opposite have a sheet of glass for the purpose of observation, laid on top of the hives. While the latter does not make exactly what would be called top sealing, it does prevent to a great extent the upward escape of moisture. A little of it can pass out under the sides or edges, because the glass covers are not sealed down. So far colonies with glass covers are showing up very much better than where there is a free and unobstructed upward ventilation through the packing material. The packing over the hives where the glass is not used and where the moisture and heat can pass upward is a little damp; and this damp packing seems to have the effect of driving the bees down lower on the frames. We called Mr. Holtermann's attention to this when he was here. The showing in favor of the colonies under glass was so marked that he thought the other colonies must have been considerably weaker; but our apiarist assured him that all four colonies were of as nearly equal strength as we could get them.

Whether the colonies under glass will continue to show up as favorably in the spring remains to be seen.

Special Numbers for 1915

WE wish to call especial attention at this time to the list of special numbers announced on the inside cover page of the December 1st issue. It will be observed that we have planned for only four numbers, our idea being that, in having a smaller number, we could devote a little more time to the subject-matter and secure better material, perhaps. However, since announcing this list so much material has come in in regard to swamp beekeeping that it is probable we shall have one more number, perhaps the September 1st issue, on this subject.

* The object of this is to give the same exposure to the pair side by side.

It is always a problem to know just what subjects to select. We always have more requests for special numbers than we can handle. For instance, in making our plans for 1915 we had some thirty different subjects suggested by beekeepers, practically all of which would be suitable for special numbers. We can truthfully add the words "By request" to each subject that we finally selected, for in matters of this kind we prefer to act in accordance with the wishes of our readers themselves.

The February 1st issue, "Experiences of Prominent Beekeepers," is the first special number for the year. Our plans for the material going into this number are about complete. We expect to present a splendid outlay of advice from beekeepers of the professional class to those of the amateur class.

The April 1st number, the special theme of which is the life and teachings of Moses Quinby, is partially under way. What a pioneer he was! The amount of original study that he did is surprising. Working independently he went on far ahead of his day. If any of our readers have been particularly benefited by the teachings of Mr. Quinby we hope that they will write us regarding the matter, and we shall be glad to have some reference made to it in this number.

The August 1st issue, as announced, is to be the beginning of what we hope will be the most complete and elaborate bee botany ever offered to the public. We have already made some extensive plans for this number. John H. Lovell, an expert botanist and photographer, is going to make an elaborate contribution. It is hardly possible to collect too much material along this line, however, and therefore we are going to make this proposition: For a good detail photograph of a valuable honey-plant, new or old, together with a little description giving the time of blossoming approximately, quality of honey, importance of the plant, and any other interesting features, we will pay \$1.00 to \$5.00 in cash, provided the photograph is one that we can reproduce.

Where it is possible the photograph should be natural size, and should include both leaves and flowers; but do not use too many of either. For colored flowers (all that are not white) orthochromatic plates are desirable, and a ray filter will bring out the relative value of orange and blue flowers.

All pictures not accepted will be returned if stamps for this purpose are enclosed. You need not be a beekeeper nor even a subscriber to *GLEANINGS* to accept this offer.

It is open to every one. Photographs 5 x 7 are preferred. Snapshots and photographs taken with small kodaks would probably not be acceptable unless very clear or of rare flowers. Photographs of large plants and trees show the flowers very indistinctly, and it is pictures of *flowers* that are wanted. In some cases, however, it may be desirable to send also a photograph of the entire plant.

There are some exceptions to the foregoing; but what we want primarily is a photograph so clear and sharp that one not acquainted with the plant could recognize it from the picture if he should see it. The lens must be "stopped down" in order to make the picture sharp and full of detail; and this means that the exposure, which must be short to prevent blurring caused by any movement of the leaves or blossoms, must be made in a very good light in order to secure the depth necessary. The negative must be printed on a glossy black and white paper; and the print, in order to reproduce well, should be just a *trifle* darker than would be necessary from a photographic standpoint. Here is a chance for beekeepers having cameras to make some money on the side, and, incidentally, to contribute to a much needed cause.

Since the publication of our booklet, "The Use of Honey in Cooking," a good many have written us telling of splendid new recipes that they would like to send us whenever we get ready to publish a special number on the subject. We wish to use a large number of recipes in this special number of October 1, "Honey for Cooking and for the Table," also "Honey as a Remedy." For any recipe which has not been published before, and which we can use, we shall be glad to pay \$1.00. Therefore, if you have a good recipe which you have tried and *know* is good, and if you have use for an extra dollar, just send us the recipe in question.

In reference to the material used along the line of "Honey as a Remedy," perhaps we should add here this word of caution: Sometimes honey is recommended as a cure for very serious diseases. While we should be glad to publish any such that are sent in good faith, we feel that it would be best, in case of serious diseases, to have the name of at least one reputable physician who has used the preparation containing honey for the disease in question. This will go a long way toward preventing the publication of what might be called "hearsay evidence." The remedy might not and probably would not be harmful, even if it were of no value; but honey is sufficiently valuable for ointment in case of skin trouble, for colds,

including sore throat, hoarseness, etc., to make superfluous any attempt to prove it a cure-all.

Boiled Honey Not Suitable for a Queen-cage Candy, and Why

A YEAR or so ago the postal authorities at Washington required a certificate of inspection with every package of queens that went out through the mails, or a copy of an affidavit showing that the breeder boiled thoroughly all the honey in the queen-cage candy. To boil the honey was a nice procedure, but it seemed like a wise precaution, and we, like many other queen-breeders, not only furnished a certificate of inspection with every package of queens, but boiled the honey also.

We noticed that, for some reason, shortly after, queens would not go as far in the ordinary mailing-cages as they had done formerly. We observed also that we had to replace more shipments than formerly; but at the time we did not connect up cause and effect. We discovered, also, that it was practically impossible to send queens to foreign countries where hitherto we had sent them without any great difficulty. We changed the sugar; we altered the size of the cage; we modified the form of the cage. We put in water-bottles, thinking the bees needed a drink on the way. We gave them chunks of comb honey along with the queen candy; but, no matter what we did, the results were almost the same.

We discovered, also, that when we began to ship bees in pound packages this spring and summer they did not go through to their destination as well as they formerly did. We perfected the water-bottle, and that helped a great deal. We added a can of sugar syrup in addition to the can of water, and that helped, but continued to use the old queen-cage candy as before; but still the bees did not travel through in pound packages nor in mailing-cages as well as formerly. We were at our wits' end.

Finally we went back to the old style of export mailing-cage we used years ago that would deliver about 50 per cent of the queens alive to Australia. This failed as did the others. Then we began to think that possibly in some of the foreign countries the packages of mail, to prevent the spread of disease, were fumigated. But this did not explain the fact that in many cases the bees on arrival at destination had died of dysentery. Then we began to think it might be the wire cloth; but it could not be that, because there were some cases where no wire cloth was used, and yet the bees died just the same.

We began to get a clue to all our trouble when our Mr. Brown reported that there was one lot of bees that showed dysentery very strongly in the last car that went to the Dismal Swamp, Virginia, while other bees from other yards of equal strength showed no trouble. An examination of the record showed that the stained hives came from the Ault apiary. Now, the Ault bees had been fed with boiled Porto Rican honey to prevent any possible danger of disease. But the bees, apparently, did not like boiled honey, so we began to feed it later without boiling. But a great deal of boiled honey* had been fed just the same. The significant fact was that the Ault bees in the second car showed signs of dysentery at the end of the journey, when all the others showed no such symptoms. Finally it dawned upon us that the dysentery in the Ault bees in the carload and the dysentery in the pound packages of bees and in the bees in the mailing cages was due to a common cause, viz., boiled honey. The fact that a number of these shipments showed up dysentery, and that many others died without showing any symptoms, began to make us believe that the postal regulations, requiring the honey to be boiled, issued with benevolent intentions toward the beekeeping industry, were responsible for our trouble. Had not those authorities granted us the alternative of using an inspector's certificate in lieu of a statement that the honey had been boiled, the ruling would have come very near barring bees and queens from the mails.

It is possible that invert sugar might be used in place of honey in the making of a Scholz or Good candy. As invert sugar is similar to honey, there is no reason why it could not be used, providing, of course, that the substitute does not cause dysentery as does boiled honey. It is possible, and probable, on the other hand, that we may be able to use the "fondant" (made of glucose and cane sugar) praised so highly by our Massachusetts friends. But if neither fondant nor any other kind of sugar will answer, it is still permissible to use the old bee-candy such as we formerly used, made by mixing powdered sugar and raw unboiled honey into a stiff dough, provided, of course, that every package of bees is sent out with a copy of a certificate of inspection from a duly authorized inspector.

It is too late now to try out the whole proposition of mailing-cages and pound

* In boiling honey to kill possible bee-disease germs it is very easy to burn or scorch a little of it if it is not kept thoroughly stirred. Years ago A. I. Root found that a slightly scorched honey fed to bees for a winter food was almost sure to bring on dysentery, and in practically all cases it killed the bees outright before the winter was half over.

packages this season with either one of the substitute foods mentioned; but the reader may rest assured that we will give them a thorough trial again next summer.

Of course it is by no means proven yet that boiled honey has been the source of our trouble; but the indications point that way very strongly. It is certainly worth investigating, as our replace shipments by mail and express last year cost us hundreds of dollars.

A Serious Situation in Colorado; how the Spraying of Fruit-trees is Tending to Paralyze the Beekeeping Industry on the Western Slope

MORE and more it is becoming apparent that the spraying of fruit-trees in Colorado (or rather, perhaps, the spray falling on cover crops beneath) is destroying bees in such a wholesale manner that, unless something is done, beekeepers will be compelled to give up honey production entirely, or move their bees, if they have any left, to localities remote from any orchard. Some of the orchardists feel that bees are their best friends, and that they cannot afford to adopt any policy or practice that will cause their general removal. If all were like them the difficulty would be solved. More and more, facts are beginning to pile up, however, showing that thousands of colonies are either destroyed outright, or at least are so weakened that they are practically worthless. Unless something can be done it is estimated that something in the neighborhood of 5000 colonies (or as many as may be left) will have to be removed from the vicinity of the orchards in Western Colorado.

The experience of the last year or two in that State leaves no room for doubt now that the arsenites of the ordinary strength used for killing the codling moth will kill bees when the solutions containing them fall on the clover-blossoms beneath. Notwithstanding that, there is some testimony that goes to show that the same spray on the trees themselves is not necessarily destructive. In our last issue, Mr. J. A. Green, page 794, gives some evidence showing that the wholesale destruction of bees as the result of spraying can scarcely be questioned. On the other hand, Mr. Woodworth, on page 987, introduces some other testimony to the contrary. Fortunately this conflict of opinion can be easily explained.

A few days ago our Mr. J. G. Brown, one of the Colorado sufferers, and who came to Medina to work for the A. I. Root Co. because his business was ruined by the spraying of fruit-trees, offered an explana-

tion. He says that the spraying of fruit-trees, even when in bloom, when there are no cover crops or clovers beneath the trees, does not necessarily poison bees. So far he agrees with Mr. Woodworth. The orchardists of Colorado, acting on the advice of their entomologist, Prof. C. P. Gillette, have been in the habit of spraying before and after the trees are in full bloom. Very frequently such spraying will be applied before the petals begin to fall. Against such spraying there is little complaint; but when the orchardist grows a cover crop to fertilize the soil of the orchard, the spraying liquids fall down on the clover-blossoms, which are in just the right shape to catch the full strength of the poison. It does not matter whether the trees are in bloom or not. The sprays fall down on the clovers that are in bloom, the bees visit them, and are destroyed by the thousands. One yard of Mr. Brown's bees is practically ruined. Many colonies were killed outright, and others were so weakened that he could not do any thing with them. One of his neighbors, an orchardist, stoutly protested that the sprays that fall on the cover crop did not kill bees, saying that the cause was to be accounted for in other ways. He had, he said, a few bees in his orchard, and these bees were all right. Mr. Brown told him that he must be mistaken; and to convince him of his mistake the two examined the bees that were supposed to be "all right," with the result that they found them nearly all dead. Mr. Orchardist was convinced.

Many of the fruit-growers acknowledge that the sprays that fall on these cover crops kill bees; and so far as they are concerned they will do any thing that is reasonable to save the lives of the bees, for bees they must have. Other orchardists are not willing to make this admission. Unless all the fruit-growers will co-operate, bees will be destroyed by the thousands, and a big industry will be practically paralyzed.

The question will be raised, "Why have we not heard of this wholesale destruction of bees in Colorado before?" Mr. Brown explains it by saying that green manuring—that is, growing cover crops beneath the trees—to renew the soil is a comparatively recent practice. Orchardists over nearly all the country have learned that one of the simplest and most economical ways of doing this is to plow under a crop of some sort. Crimson clover has been used largely for the purpose. In Colorado red clover is used almost entirely; but it happens that it is in full bloom before the spraying season is over. The poisonous liquids that fall from the trees drop on the clover-blossoms, then

the bees get them. As these clovers furnish nectar when there is nothing else, bees are killed by the thousands.* Sometimes the spraying is applied on the trees before all the petals have fallen; but if no more nectar is yielded, no harm is done to the bees. So the spraying of orchards *before* cover crops were used, did little or no harm to the bee-keeping industry. The damage occurred only when there was ignorant spraying, the poison being applied when the blossoms were full of nectar. But such spraying has practically gone out of vogue. But the recent introduction of green manuring in the State has brought on a new and serious problem, because the bees, naturally enough, will help themselves to the nectar in clover-blossoms.

The only remedy seems to be in cutting the clover just before it comes into bloom, or turning it under. The best authorities on soil culture recommend plowing the clover of cover crops under *before* it blooms, because at that stage of growth it makes a better fertilizer. Whether all the orchardists can be induced to see that this would be to their advantage as well as that of the beekeepers is doubtful. For that reason remedial legislation will have to be enacted, for there will always be a few who will persistently remain ignorant, for no ignorance is so dense as prejudice. There will always be some who imagine that bees are stealing something from their fruit-trees, and that the bees are of no use to them. Considering the fact that a large number of intelligent fruit-growers will not wish to destroy their best friends, the bees, and will favor suitable legislation, and the further fact that all the beekeepers will unite with them in asking for a law that will protect their common interests, it is to be presumed that the legislature of Colorado will, at its next session, provide the needed relief. If it does not, we are informed that something like 5000 colonies on a conservative estimate will have to be moved out of the vicinity of the orchards on the western slope; and this will cut down the fruit crop over a large section of the State, and at the same time have a tendency to overcrowd other locations in Colorado that are already overcrowded with bees.

Later.—Since writing the foregoing the following extract from a paper read at the Montrose Co. Beekeepers' Association meeting has been sent us. The author of the paper, O. C. Skinner, of Montrose, Col., is the Speaker of the House of Representa-

tives of Colorado. Here is what he has to say confirming to a great extent what we have already said above:

The beekeepers of Colorado, and especially those located within the fruit belts and on the western slope, have been heavy losers this year on account of the poisoning of bees and larvae with spray poisons.

The new Colorado law, passed by the last General Assembly, prohibits the spraying of fruit-trees "while in full bloom," and it was thought that this would sufficiently protect the beekeepers from this danger; but in place of the regular fruit-blossom-spray danger, another has arisen to plague the honey-gatherers.

Many orchardists, especially on the western slope, which is an extensive fruit section, have begun to plant a cover crop under the trees in order to fertilize, and to protect the surface from sun and wind and drought. In that locality the cover crop usually chosen is red clover, and the danger now developed is that this clover blooms long and vigorously, after the trees have shed their blossoms, and when the law as it now reads will allow spraying, for the trees are not "in full bloom."

The result is that the beekeepers in the heavily fruit-growing sections have been almost put out of business, some having not only lost all the honey crop, and failed entirely on increase, but also lost many stands of bees from dwindling.

Around Montrose the loss was very heavy because there is a lot of red clover used as cover crop there. The spray mixture falls on the blossoms of the clover; and while it is generally supposed that bees do not work extensively on red clover, yet in the season of 1914 they worked enough to make the honey business almost a failure in that locality. It is suggested that the year 1914 was conducive to the small growth of the flower of red clover, making it easily worked on by bees, and therefore more to be dredged than in ordinary years, but that is not proven.

The effect of the spray poison is quickly apparent, the bees hopping along the ground, unable to rise, and those which do yet fly exuding a yellowish or brownish watery mixture, which can readily be seen on the ground and on the hives. On crushing the dead bees, this yellow excretion will be seen to exude.

Among the orchardists who were driven from the orchards of that locality are J. C. Mathews, who had to move two apiaries; J. J. Corbut, Will Corbut, A. B. Clement, and O. C. Skinner; while the Allen Bros. and J. G. Brown held their bees in the orchards, and especially in the case of the former, an entire loss of crop and a heavy loss of bees resulted.

In any yard located in the fruit belt, in the early morning, and just after the bees had begun to fly lively, the ground in front of the hives would be literally covered with sick bees trying to fly, or crawling along the ground, while at any time of day the dead bees could be found all about.

J. C. Mathews got little or no return from the bees he moved out of the orchards. The Corbutts had about the same results. A. B. Clement got no returns from those he moved out, but saved the bees. O. C. Skinner moved his apiary into two new ones, and got about a quarter of a crop of honey from one apiary and a fair number of swarms; but from 142 moved later to another location he got no honey whatever; had no swarms at all, and the original 142 colonies are now reduced to 114, with a fair chance that there will not be over 100 left in the spring. This latter heavy loss was probably due to having the apiary, as located before moving, directly alongside a clover-field under fruit-trees, where the bees worked constantly. It seems that the bees were so reduced before moving, and so discouraged, that they did not even build up properly for winter.

* The fruit-men know that these crops should be plowed under before they come into bloom; and about the only reason why they don't do it is because they are too busy with their spraying.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



EXPERIMENTS reported p. 987 seem to show that poison which kills codling moth doesn't hurt bees. The proof is negative, but I suppose it will have to stand unless some one comes along with positive proof that in another case it does kill bees. [See editorial elsewhere.—ED.]

CONSIDERING the pages and pages that have been written about the trouble with candy and syrup, I wonder if we won't some day settle down upon it that the wise thing is for each beekeeper, if he can't have on hand a stock of sealed combs, to have at least enough candied honey, "own make," constantly on hand to meet all emergencies.

G. M. DOOLITTLE 'fesses, p. 973, that he makes mistakes and failures. Thank you—thank you kindly, Bro. Doolittle; glad to have company. Then Editor Root admits that he doesn't know every thing by appealing for "light on this matter" of feeding honey vs. sugar, p. 963. Really, one great beauty of beekeeping is that you never get to the end—always something more to learn.

"LIGHT fluffy snow" to close entrances when cellaring bees, p. 963. Good! Wet rags when no snow. Better than either, the way mine were carried in this year—just picked up and carried in with open entrances, and no veils. That should be possible at 40 degrees or lower, when bees have flown two or three days previously. Mine went in the same day as yours, Dec. 8, at 26 degrees.

GEORGE SHIBER, you use the Doolittle plan to shake bees off extracting-combs on the ground, p. 988. With heavy combs I wonder if you wouldn't find it a little quicker and a good deal easier to try the pendulum plan. Take hold of one end of the top-bar; swing up the comb in front of you with the bottom-bar pointing forward, then let the other end of the top-bar strike the ground with comb in such position that the corner of the frame on the ground and the diagonally opposite corner shall be in a vertical line.

ONCE when I was at Medina a colony with American foul brood was at night thrown into a furnace, and hive, combs, bees, every thing, burned up. That's a safe treatment. Yet you would hardly advise it, Mr. Editor, nowadays, even for a careless beekeeper, if he had a dozen affected colonies. You would certainly save the bees, and probably the hive and the healthy brood.

You think, p. 882, that if you had European foul brood you'd destroy the combs. Likely enough, just as at first you destroyed bees in cases of American foul brood. But I feel sure you would learn that it is just as safe to save combs with European foul brood as it is to save bees with American foul brood. Moreover, please remember that with me European foul brood came back as much with shaking as with dequeening. Say—isn't it a bit ungrateful in you, Mr. Editor, to go back on me for advocating the saving of combs in European foul brood when I began it just to please you? [No, we did not go back on you. We stated that, with your knowledge and your environment, we would do exactly as you are doing. We only thought it was a little dangerous to tell the general public that it was safe to use the old combs over again that have been affected with European foul brood. While it is true we originally promulgated the idea that such combs could be saved (and we believe they can be in the hands of an expert), yet we, as publishers of GLEANINGS, are dealing with the great masses who are not experts; hence our advice to burn the combs as a general proposition. While we believe we can save the combs of European foul brood, yet on the other hand we are selling colonies in nuclei to beekeepers all over the United States; and it would be unwise for us to send out any combs, even after they have been cleaned up by the bees, that have once contained European foul brood, and we would be severely censured if we did. You yourself would follow our policy.]

We realize the fact that it is a little difficult to be entirely consistent clear through unless we take into consideration the parties with whom we are dealing. It does look as if we were reversing our policy to advocate burning the combs of European foul brood when it was we who made public the Alexander treatment and published many articles indorsing it, showing that the combs of European foul brood could be saved. If we had it to do over again we would do it again, because in so doing we would save experts thousands of dollars. If we were in the business of honey production only and were not shipping bees or colonies, we would burn no combs containing only European foul brood, because we believe our knowledge and experience would enable us to do just as you have done. There, now, doctor, have we made ourself clear?—ED.]

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



The loquat and eucalyptus are furnishing the bees a source from which to get an encouraging amount of nectar and pollen for winter encouragment.

* * *

A heavy rain has fallen during the past twenty-four hours (Dec. 12). This will insure the early-blooming flowers sufficient moisture to bring them forth on time and in abundance. Early breeding is all but assured. This, with the already prosperous condition of colonies, will have a tendency to increase the size of the crop, even with a light flow.

* * *

Certain blooming periods are given in "Honey-plants of California," as applied to the pepper-trees. Except that they begin blooming in early spring and continue until winter, they have no distinct blooming period. There are several trees near my home that are blooming now, Dec. 12. I do not mean to say, however, that every tree blooms constantly from early spring, but there are trees in bloom during that period.

* * *

A word of warning to those who are contemplating a move to this State to take up the bee business: If you are doing even fairly well where you are, better stay. There are hundreds contemplating the move who are only doomed to disappointment, at least for a time. Conditions are so different from those in the East that one must become acquainted with the ways of the West before it is possible to make a success of the business here. There are many Eastern bee-keepers here who have made the assertion to the writer that, if they were now in the East with the experience they have gained in the West, they could make the business pay more dollars there than here. But all agree that they are willing to do with fewer dollars for the sake of the climate. But climate will not keep us all, and the real problems must first be solved by those acquainted with conditions here before a full measure of success can be realized.

* * *

Mr. G. H. R., page 926, Dec. 1, your explanation has cleared matters greatly, as I see it. The fact that the colony of which you speak drew out six sheets of foundation with but one quart of syrup does not prove the syrup was wholly responsible for the six sheets of foundation having been drawn.

I have solved it like this: The syrup caused the bees to draw the foundation. That is what was done in this case, and not merely the addition of wax to the foundation. The ordinary medium-brood foundation is much heavier than is utilized for the base of the comb; but the cells are drawn to a greater or less degree from the foundation without the addition of a single wax scale by the bees pulling up the surplus wax into cell formation. I am of the opinion that has been the case with your foreman's experiment. Take a sheet of light, medium, and heavy brood foundation, and measure the base before placing in the hive. After they are drawn, examine the base and you will find that it is much thinner than when placed on the hive. Take the same sheets when drawn from 1-16 to $\frac{1}{4}$ inch and you will find the cell construction the same color as the base. There is little foundation drawn by bees the base of which is not reduced before the cells are completed. [See article by R. F. Holtermann on this subject, page 13.—Ed.]

* * *

Whether the editor of the *Beekeepers' Review* was alluding to the California State Association or some other in the November issue, I am not able to say. However, he came near hitting the nail squarely on the head so far as this State is concerned. It seems to me the selfish attitude we have assumed in this is little less than inconsistent. I am not a member of the National, but expect to return to it very shortly. The reason I am at this time not a member is that I was influenced by a prominent member of the California State Association to hold allegiance to our own association only. I see by the actions of our own association in its efforts to organize county clubs to enhance the value of the State association that there must be strength in organization. So I have come to the conclusion that, if there is strength in a State association, there must of necessity be a greater strength in the National; and it is my opinion that we shall soon see the California State back in the fold of the National. It should be. There is no valid reason why it should not be. I was told, when persuaded to leave the National, that we needed the money to promote our own association. Naturally I was interested in our own organization, and decided to obey suggestions. Now I see where I was weak, not only in paying my

Continued on next page

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.

 With the winter setting in early in the east and central States, it has been the opposite here in the West. We had no snow or cold weather to speak of until early in December. Bees have had a favorable season so far; and with a fair quality of stores there should not be much loss in wintering.

With the postoffice officials giving orders for more care in handling packages it may not be long until honey may be sent safely by parcel post. I was told by one of our postoffice clerks that honey is a liquid while eggs are not. This being the postoffice ruling, he would not accept honey for shipment by parcel post unless there was absorbent wrapping enough around the package to absorb all the honey in case the package should be broken and the honey leak out. I think that, with the effort the Postoffice Department is making to extend parcel post, a few more disastrous leaks of honey will have as beneficial an effect on handling parcel-post matter as it will detrimental. Until the department will accept and carry the same class of package goods as the express companies it will not fulfill its rightful sphere.

WHAT TO DO WITH COMB HONEY.

I have had some discussion with beekeepers as to the advisability of selling cull honey on the market at all. Some take the position that this honey should be fed back to the bees or rendered. Cull comb honey weighs about 16 pounds net to the 24-section case, and sells locally at \$1.75 to \$2.00 a case. It retails for 10 cents a section, or three for 25 cents. There is no doubt that it tends to lower the price of the higher grades. On the other hand, there are a great many people who will buy this honey when they would go without if they had to pay 15 to 20 cents for a section. There is an increasing amount of fruit being sold in bulk. Peaches are being sold in bushel baskets instead of small baskets and boxes, and it is because they are cheaper. The expensive methods of packing and marketing produce do not appeal to all buyers. Having on hand about 35 supers of unfinished comb honey weighing about 10 lbs. net to the case (deducting the weight of the section), I started selling it locally by weight at 10 cts. a pound, and it is the best "come again" trade-getter that I have seen

for some time. It can be carried home either in the sections, or broken out of the sections and carried home in a pail.

STAMPING THE WEIGHTS ON COMB HONEY.

The point raised by Mr. Burnett, page 922, Dec. 1, regarding incorrect stamping of the weight on sections of honey, is a good one. In Colorado we have been packing our honey in three grades, with a minimum weight for each grade. When we have a section of honey that will not grade more than No. 2 on account of a few unsealed cells the weight is stamped "Net weight not less than 10 ounces." This section in many cases may weigh 12, 13, or 14 ounces net. All the sections in a case are stamped the same net weight, but they may not weigh the same, although the most careful packers keep sections of uniform weight together in a case. A heavy-weight case of No. 2 comb honey may weigh 15 or 16 ounces net weight; but if it is No. 2 on account of finish or color, each section is stamped "Net weight not less than 10 ounces." This statement on the section may be true; but it is not accurate, and does not help the sale of the honey.

The rubber stamps that the writer has seen do not have the lettering of the net-weight minimum large enough; and instead of printing it this way, "Net weight not less than 12½ oz.", it should be printed this way: "Net weight not less than twelve and one-half ounces." I would think further that the half-ounce weight should be discontinued, and only even-ounce weights used.

With a good set of rubber stamps with the lettering large enough it is not difficult to do rapid and neat stamping. It is not a difficult matter to get the stamp printing straight across the top of the section, but I have seen a lot of twisted work done.

Continued from previous page

local dues without question, but in failing to stay with the National. There is no class of producers in our land who are as timid about paying out a little money for organization and advertising as the beekeeping. The difference in the amount of cash that comes into our hands marketing our produce as we do, from what it would be with constant and judicious advertising, is so great that we would be astonished at the results of advertising.

NOTES FROM CANADA

J. L. Byer, Markham, Ontario



The common dandelion is one of the hardiest plants in our latitude. About Nov. 18 we had a cold snap for two days in which the thermometer dropped to zero for a few hours. Early in December, on a mild but by no means warm day I noticed quite a few dandelions in full bloom on a southern hillside. There had been no snow, and I was surprised to find the bloom notwithstanding the recent zero temperature.

I am interested in the discussion regarding the comparative value of late swamp pasture as compared with feeding honey or sugar to build up small colonies in good condition for wintering. One factor has not been mentioned, which would have a great bearing on the success of such experiments here in Ontario. The colonies fed in early fall on good sugar syrup would be almost sure to winter if given any ordinary protection, no matter how severe a season might follow. On the other hand, experience has shown that, taking one year with another, late fall honey such as aster and goldenrod, are very uncertain provisions indeed in so far as the wintering of the colonies having this honey is concerned; consequently there is no question but that it will pay us best, when occasion so requires, to depend upon the artificial feeding instead of moving to fall pasture. By fall pasture I have in mind any honey coming in after September in our locality. Buckwheat with us has generally proven a good wintering food; and when it has seemed to give trouble, generally the presence of some honey-dew would explain matters.

When sending notes for the Dec. 1st issue I mentioned the fact that October and early November were unusually mild for our locality. As usual, one extreme follows another, as the saying goes, and we have had, since about Nov. 12, steady cold weather. To-night, Dec. 14, the thermometer is standing at 2 below zero, and a heavy wind is blowing from the northwest. Bees have had no flight to speak of since the last of October, which is quite different from the record of the past two years when flights occurred in early December.

Naturally this means a longer confinement for the bees wintering outdoors, assuming that spring flights come about the same time

as other years. This may or may not mean quite a difference in wintering prospects, especially where the bees are wintering on natural stores of quality none too good, as a late fall flight often means the saving of many colonies that would otherwise suffer if the flight were not available. We are especially concerned about the large apiary wintering on stores, much of which consists of aster honey gathered in September. Not having a late cleansing flight I would not be surprised if the loss might be heavy. But there is no use in borrowing trouble; and, for all one knows, perhaps we may yet get a "January thaw."

LOCALITY, AND HOW IT AFFECTS THE FLOW OF BUCKWHEAT.

The much abused term "locality," after all, does have a great deal to do in explaining differences that are otherwise unexplainable. For instance, if a beekeeper would have told me that buckwheat yields in the morning, then stops and again yields toward evening, if I did not know my informant well, would either question his veracity or think his powers of observation were out of joint. But on page 834, Nov. 1, the editor says that this is a fact in New York. Of course I believe the statement, even when I am positive that bees never get nectar from buckwheat here in Ontario after it stops yielding about noon, as it always does with us, except on damp warm days when the sun is partially obscured, when it may yield till 3 or 4 P. M. It is all a question of locality, and the vagaries of this same factor should make us a bit more charitable sometimes, instead of questioning too much the experience of some one which seems so diametrically opposed to our experience as to be unbelievable. [In this "locality" bees never work on buckwheat more than two or three hours in the morning, and again an hour or two in the late afternoon. The explanation is, too many bees for the amount of flora. In the State of New York, if we remember correctly, there were places where the conditions were about the same as those you report; but in most places the rule seemed to be about the same as in and near Medina.—Ed.]

Owing to rural routes being established in our section, my postoffice is now Markham instead of Mount Joy. Those writing me will kindly note the change.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



CARE OF COMB HONEY.

"Will you tell us something about the care of comb honey—how to look after it when taken from the hive, grade it, etc.? You may have written something of this in the past; but remember that the constantly increasing number of readers of GLEANINGS do not all have access to the volumes published years ago."

Allow me to say at the outset that it should never be forgotten that honey of quality, and in any of the popular packages, will constantly command a good price, far above that of poor quality, put up in a slipshod way. The better grade tempts every eye, thus producing a longing which makes a steady customer. I was once told that no product of field and farm varies so much in price as comb honey. On asking why, I learned: "It only requires to be put up attractively to create a demand for all that can be produced in America." While I would take this statement with allowance, I consider that there is much truth in it. Comb honey has the preference for table use at the present time; and if we would cater to the public we must produce that article in the most attractive shape.

This is arrived at by growth. In 1850 to '55 the smallest package of comb honey marketed as the bees stored it in this locality was a fifteen-pound box. By 1862 a six-pound box having glass on two sides came into quite general use. The year 1870 found the beekeepers using boxes holding three and four pounds with four glass sides and tin for corner posts, only the tops and bottoms being of wood from $\frac{3}{8}$ to $\frac{1}{4}$ inch thick. These were very attractive, as they not only showed the nice white face side of the comb, but told at a glance at the ends of the combs the coloring of the honey, which was a fair index of the quality and source of the sweets inside. However, the beekeepers were not yet satisfied; for after these came the sections which were then two and three pound "boxes," and these gradually gave place to the one-pound section.

Comb honey should be taken from the hive as soon as it is finished and fully capped over, or as soon thereafter as possible. No apiarist can expect to have his honey sell for the highest market price if it be allowed to stay on the hives for weeks after it has been sealed over, allowing the bees to give the white combs a dirty-yellow color by their constant travel over it and

the brood-combs below. Honey, while on the hive, is evaporated mainly by the heat produced by the bees; and, therefore, if we expect to keep our honey in good condition for market we must keep it as the bees do—in such a condition that it will grow thicker all the while. It should be stored in a room where the mercury can be kept standing at from 80 to 95 F. If stored in this way no honey will drip from any open cells during crating, neither will any of the combs have a watery appearance; but all will be bright, dry, and clean. The supers of sections should be separated so that the warm air can circulate freely all through—under, over, and between each section. Only in this way can the dry warm air treat each section alike. When crating, one should pack sections as nearly alike as possible as to kind and quality of honey as well as to white capping and perfection of combs.

The marketing of honey is a subject that interests every apiarist. As hinted before, it must be attractive. Has it ever occurred to the reader to inquire why the best-selling oranges are rolled up in fluffy paper with lithographs of enchanting faces and bewitching scenes? or why bolts of muslin are labeled with pictures of luscious fruit? No matter how good the quality, our comb honey must please the eye. Hence, instead of loading a bottomless fifteen-pound box into a springless wagon with the bottom covered with straw, as my father did in the early fifties, or putting twenty six-pound boxes into a crate, as did the writer in the early seventies, we now put from twelve to twenty one-pound sections into a no-drip case with a corrugated paper bottom and glass sides. So the attracted customer has dealt out to him a single comb of honey, which, when removed from the section, is far more inviting than all the lithographs the human mind has ever fancied.

All comb honey should be graded and a scale of prices established, based somewhat upon market quotations in the large cities. Remember that transportation and commission will amount to two or three cents per section, besides the risk of breakage in transit. So a sale at home can be made at a cent or two less than market quotations, even though it has to be retailed.

A little practice will make any one efficient along all these lines. If these suggestions are followed, no one can accuse the apiarist of "dumping" honey to break down or ruin the market.

GENERAL CORRESPONDENCE

STIMULATIVE FEEDING IN SPRING; WAX FROM A QUART OF SYRUP

BY R. F. HOLTERMANN

There has been so much said about stimulative feeding that it appears almost presumptuous to attempt to add to that which we now have upon the subject.

Dr. C. C. Miller, in *Stray Straws*, page 925, Dec. 1, says, "The average beginner is deeply impressed with the idea that, whatever his bees are doing in the way of brood-rearing, may be doubled, or at least increased, by stimulative feeding." It took me quite a number of years in keeping bees to realize that stimulative feeding did not always, by any means, tend to the advantageous rearing of brood of a colony; in fact, the beginner would do better to see that the bees have plenty of stores, and then let them do the rest. Dr. Miller goes on to say, "I don't think I have seen the time in 50 years when any amount of stimulative feeding would yield a cell more of brood in my apiary. How could it if the bees already have all the brood they can cover? Of course there are places, as mentioned by P. C. Chadwick, p. 885, where at times there are such breaks in pasturage as to stop the queens' laying, and then stimulative feeding pays big. But in general the notion that the queen should be whipped up in spring to lay more is all wrong, does no good, and may do harm."

The editor, in a footnote, agrees with the above, pointing out the value of feeding under certain conditions for queen-rearing. With the above I can heartily agree, although, even if Dr. Miller has a continuous flow during the spring, surely he must be very exceptionally favored if he has not adverse weather at times when stimulation would be an advantage. It is a safe rule for the beginner not to attempt stimulative feeding. With many, judicious stimulative feeding would be an advantage.

Let me point out an exception. Say the safe rule not to stimulate is when, during spring, there is a continuation of blossoms and the bees work on them daily. The bees bring fresh stores into the hive and the queen is fed liberally, resulting in a liberal production of eggs and brood-rearing. I do not require to look at the combs for the eggs. I know that, under the above conditions, with a normal queen they are being deposited. I have examined colonies, and found that they record their spring activities by the age and amount of brood in the

combs. In fact, it is known to some of us that a colony, if vigorous, is likely to swarm about three weeks after many eggs have been deposited by the queen—in other words, when these young bees are due to emerge from the cells. Take fruit bloom such as apple, cherry, plum, etc. With us, if the weather is fine, much brood will be found in the combs as a result of fine weather, enabling the bees to work on this. But quite often the weather is not fine, and the bees are not stimulated to heavy brooding, and yet the numerical strength of the colony is not one whit less. In such a case I believe stimulative feeding is an advantage. Make the colony in some way handle stores, and the queen will get her share; and she will do her share in producing the brood. I know of no more convenient and better way than to bruise stores in the combs. Start a cell of honey leaking, and the bees will remove the honey and put it about the brood until used for bees or brood. If the stores are not in the hive I would not hesitate to use a feeder with a thin syrup. *Thin syrup fed in spring saves the bees the trouble and danger of gathering water.*

Colonies packed during the spring can rear more brood than those not packed. They are less susceptible to changes of temperature. I know this is true in northern localities, because I have had packed and unpacked colonies side by side in the same apiary.

After a cold night or during decidedly cold days the bees in the unpacked colony are quite inactive on the outside of the cluster, while at the same time those packed were passing at will over the combs in the hive, and therefore better able to supply the requirements of the brood.

When the beginner thinks he is getting to be a very clever beekeeper, and knowing a lot (I think that disease breaks out about the second or third year) he had better be careful lest he do a lot of harm by stimulative feeding; but it seems to me there are times when bees can be stimulated to advantage, and, when possible, this has the effect of increasing the strength of the colony.

Let me say, before I forget it, feeders should not be put on colonies during daylight when the weather is too cold for the bees to fly. Outside stimulative feeding is the most convenient but not the best. First,

there is the danger of the colonies belonging to neighbors getting a part of the supplies; next, the needs of the colonies are not always in proportion to the numerical strength of the colony. Instead of putting open food out in the morning I prefer to put it out as late as possible in the afternoon so long as the bees can get it before it is too cool and dark for them to fly.

SUGAR SYRUP TURNED INTO BEESWAX.

Mr. Editor, will you let me suggest a solution to your statement that your foreman, by feeding one quart of sugar syrup, half sugar and half water, had six frames of foundation half drawn out? My solution is that the side wall of the comb foundation is often thinned and elongated, and therefore a large part of that side wall was made out of the wax side wall, and perhaps a part out of the base of the comb foundation. To test this matter the frame with foundation should be weighed when given to the swarm, and then weighed after the syrup has been fed, and the foundation built or drawn out. Some fifteen years ago I carried on some experiments in connection with my position as lecturer and experimenter in apiculture at the Ontario Agricultural College, and I blackened the wax of which the foundation was made by stirring lampblack with the wax when melted. When the bees were put on this foundation, and built the comb thereon, there was no difficulty in detecting, by the black or shade of black, just how far and to what extent the bees utilized the comb foundation.

The report of these experiments is given in full on pages 358-9 of the May 1st issue for 1896. The following extracts from that report have a bearing on this particular question:

In our experiments, observations were taken along various lines—*first*, as to what extent, if any, the bees thin the base and side wall of the various thicknesses and kinds of comb foundation. Measurements were made, whenever possible, of the weight of foundation compared with the number of square feet, and thickness of the base of foundation. Measurements were taken of the comb at the base, the side wall close to the base, and half an inch up the side wall. The comb was put on ice to harden it for the purpose of more accurate measurement; and three measurements were taken in this case.

Again, to see just how the bees utilized the comb foundation, three tanks of melted wax were prepared. One was colored with a preparation of alkanet, another with a preparation of carbon, and the third was pure beeswax, uncolored. The various stages in the manufacture of comb foundation were carried out, giving comb foundation from each tank ten, twelve, and fifteen feet square to the pound.

These were placed side by side, and drawn out in the upper stories by the bees. It was manifested in various ways that the bees objected to the alkanet, so this kind was discarded. To the foundation, colored black with the preparation of carbon, the bees did not object. The object in placing foundation made of ordinary wax alongside of the colored,

was to make measurements of each kind when drawn out by the bees. The measurements of the colored and uncolored, being identical, gave us a basis for the statement that the bees did not object to this preparation; and the method of drawing this out was identical with that of ordinary foundation. The base and lower part of the comb were not, as we might expect, of a black color, and the fresh and added was white. Instead there is a regular graduation from black at the base to white at the top of the cell. The heavier the foundation, the darker the base and adjoining side wall.

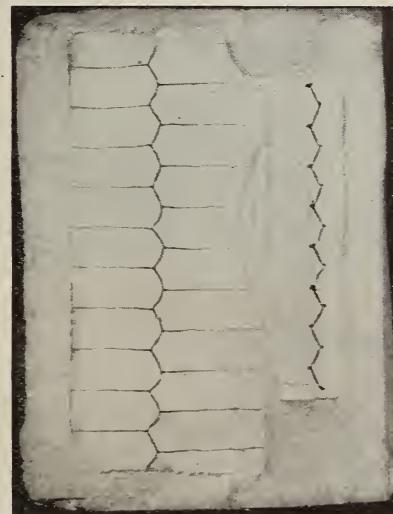


FIG. 1. (c)—giving a side view of comb foundation, 15 sq. ft. per pound; and the same after the comb has been completed and capped by the bees. The honey has been extracted, and washed away from the comb, and a section cut down, which, after a thorough drying, has been filled with plaster of Paris.

From the above it would appear reasonable to expect that the bees keep adding scales of newly secreted wax and then pulling the side wall, thus decreasing gradually the percentage of colored wax. We also conclude that the quality of wax used in the foundation has an influence, not only on the base, but, to a certain extent, in almost the entire wall of the cell. The heavier the foundation, the greater the influence on the side wall. Again, notes were taken daily when the bees were beginning to draw out the foundation; and although the heavier foundation was scattered about in the various parts of the upper stories, they gave the preference to the heavier foundation, working on it first. Great caution must, of course, be observed in coming to conclusions. The bees, if the heavier foundation had been taken away, might have been almost as willing to go to work at once upon the lighter grade. At present no way appears open for conducting a satisfactory experiment to prove any thing in this direction. The measurements taken at the base of the wall, and half an inch from the base, all tend to show that the wall is thicker at the base, and tapers, becoming thinner at the mouth. So far as I am aware, no one has ever made such measurements.

The "Vandeusen" is a flat-bottom (unnatural) foundation. The various specimens of this kind which were put into the sections were partially covered to prevent the bees from touching the covered portion. The remainder was left to the bees. In every case the bees changed the base from flat-bottom to natural.

If Mr. Chadwick thinks that all the wall on the foundation, beyond what depth there was on the wall when inserted, is made of beeswax produced by the quart of thin syrup, this is not necessary. I have weighed sheets of foundation when put in the frame or hive (using seven Langstroth sheets to the pound weight). Then after the comb was built out I again weighed the drawn comb and found that the bees just doubled the weight of wax in the frame. If a part of the wax in the comb foundation had not been used for the elongated wall I do not

think there would have been so little difference. Herein is shown an added value in comb foundation. It saves wax secretion and the expenditure of honey, and I almost invariably use full sheets of foundation whether in the brood-chamber or the supers, be they for comb or extracted honey. If a swarm is thrown on the foundation we must remember the bees are in the best shape for secreting wax, and that they will have a lot of wax scales on the abdomen, and, in addition, will be full of honey.

Brantford, Canada.

IOWA ANNUAL CONVENTION HELD AT AGRICULTURAL COLLEGE

BY F. C. SCRANTON

In order to secure the advantages accruing from a meeting at the Iowa State Agricultural College at Ames, which, by the way, is one of the foremost institutions of its kind in the country, attracting students from points as distant as China, it was necessary to set the dates a little earlier than usual. The attendance would have been somewhat larger had the convention been held a month later; but those who gathered there were deeply in earnest. They came for information, for help, to learn how to do their work quicker and better, and every one got what he or she (for there were also a number of ladies in attendance) came for.

The morning session of the first day, Nov. 17, was given over to the usual routine work such as president's address, report of secretary, reports of committees, and appointment of committees. Following this the secretary, Mr. Snyder, read a letter from the Woodbury Beekeepers' Protective Association, urging that legislation be enacted prohibiting one beekeeper establishing an apiary within a certain distance of another beekeeper's apiary, and suggesting that the association enact by-laws making it an offense for one member to establish an apiary within three miles of the apiary of another member without the consent of the member whose apiary is already established. Violation of this would subject the guilty member to a fine of from \$3.00 to \$10.00 for each colony in his apiary.

In the discussion of this paper it was shown that so many conditions, such as locality, season, topography, etc., enter into the subject that it would be impossible to set any exact limits which would be perfectly fair to all. The number of colonies already located would also affect the question of distance apart.

On the afternoon of the 17th, Prof. Bartholomew gave a "short-course" lecture,

using a large model of the bee. His audience was deeply interested throughout the talk. He showed why it is impossible for bees to bite the skin of fruit; compared the æsophagus to the crop in a chicken; showed how the honey-sac is filled with honey in winter, and how it passes through a valve into the stomach as needed; explained how the blood of an insect contains no oxygen, fills all spaces between cells in the body, and how it is supplied at these points with oxygen, and how a constant circulation of this fluid is kept moving through the body.

On the evening of the 17th, C. P. Dadant gave a history of beekeeping. This was followed by an illustrated lecture on nectar secretion and the honey flora of Iowa. It was both interesting and instructive.

At the morning session on the 18th, Dr. Phillips, of Washington, D. C., gave a very instructive talk on temperature and moisture of the hive in winter, both as concerns outdoor and cellar wintered colonies. In conducting his experiments along this line he seems to have established the fact, as stated in the Nov. 15th issue of GLEANINGS, that the bees forming the cluster in winter are not dormant during cold spells, as was formerly accepted, but that they form a sort of ball, the bees in the outer layer of which take a position with their heads pointing toward the center, and remaining very nearly motionless, while those inside this circle fan with their wings, move about, and attend to raising and lowering the temperature. He laid particular stress upon the fact that, when bees are wintered in cellars, proper attention should be given to ventilation and to eliminating moisture from the cellar.

Mr. W. S. Pangburn, of Center Junction, Ia., talked on the subject of cellar wintering. Mr. Pangburn is counted a very suc-



Iowa convention at Ames, November 17-19.

cessful beekeeper; and not only that, but he is also a good farmer.

Prof. Francis Jager, of the University of Minnesota, told what the agricultural colleges can do, and what the Minnesota college is doing, to further the cause of beekeeping.

Most of the afternoon was given to various demonstrations by different beekeepers. Mr. Hall, of Colo, again showed how he fastens foundation in sections, and how he folds his sections, as well as his method of putting full sheets in brood-frames.

Dr. Leonard, of Minneapolis, who is a champion of the split section, showed how to insert foundation in split sections, four at a time, and without several unnecessary handlings of the sections.

Mr. Pangburn demonstrated his method of fastening foundation in sections with but one handling, they being ready for the

super when he finishes fastening the last sheet.

In the evening Dr. Burton N. Gates, of Massachusetts, gave an illustrated lecture. While there was some delay in getting the lantern to operate so the slides would show, there was no lack of interest in his lecture.

The meetings on the 19th were devoted to discussions and to cleaning up the business, such as reports of committees, etc.

Officers elected are as follows:

President, Prof. Bartholomew, of Iowa State College, Ames, Ia. Vice-president, B. T. Bleasdale, Des Moines, Ia. Secretary-treasurer, S. W. Snyder, Center Point, Ia. Directors: W. S. Pangburn, Center Junction, Ia.; J. W. Stine, Stockport, Ia.; A. P. Chamberlin, Des Moines, Ia.

The next annual meeting will be held at Des Moines, at a date to be announced later. Des Moines, Iowa.

DESCRIPTION OF THE SEVERIN 1914 MELTER

BY F. J. SEVERIN

My latest 1914 design of capping-melter surpasses my 1911 model shown on p. 724, Dec. 1, 1911. It keeps itself clean, and melts the cappings, or whatever there is to be melted, more quickly, and holds only about two gallons of water as it is not so large as the old melter. This 1914 melter requires only one burner on a gasoline-stove. It has only 17 x 13-inch melting surface; but it contains 221 half-inch tubes one inch in length. In other words, it takes nearly 18½

feet of half-inch tubing. The melter top is flanged out wide enough to be 23½ x 19½ inches, and is 7½ inches deep to the top of the tubes. See Fig. 1. Four frames may be put in when uncapped ready for the extractor. There is a place for two uncapping-knives at the right of the operator, 7½ inches wide by 9 inches deep, taking any size of knife up to 9¾ inches in length.

One inch below the tubes is a spout 6½ inches wide and 3½ long, for the escape of

the honey, wax, and refuse. A waterway of fully half an inch is below the spout. A screw cap lets water out of the melter without tipping it up.

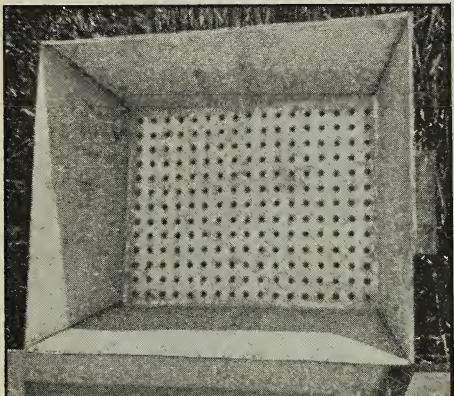


Fig. 1.—Top view of F. J. Severin's new capping melter, showing the tubes.

The outside is made of heavy Teuton iron resembling galvanized iron, and will resist rust and wear longer than galvanized iron.

The tubes are made of seamless brass tubing, above and below, and are soldered into sheets of heavy tinned copper. The partition catching honey, wax, and slumgum, is also of heavy tinned copper. The tubes are well covered with hot wax and honey as soon as made. These holes are well rimmed out smooth so the cappings and honey will pass through as soon as melted. Having a flat melting surface it melts very rapidly, and will not run down as with a sun-extractor or when tilted too much. This melter is supposed to stand level. A flat wooden paddle is used to scrape back and forth the refuse if one is cutting many dark tough combs. I have taken old black combs, brok-

en them loose from the frame, laid them flat in the bottom of the melter, and then uncapped in the clear place, and in a very short time I could take the paddle and pull it through the comb when it would break and crumble up as if the sun had hit it in a good solar extractor. This could not be done with the V-shaped tubes in the old melter, as that melted on the V edges first, and the full amount of heat could not hit the comb as with the 1914 melter.

This melter is by far the best I have ever used, seen, or read about; in fact, it is the result of my long experience in the use of different melters, and in seeing other designs in use.

THE NEW SEPARATOR.

The new separator is also constructed differently from the one of 1911. Fig. 2 shows the separator completely assembled, and Fig. 3 the separate parts excepting one wax-pan.

The separator consists of three parts, all made of Teuton iron—the outside pan, the slumgum-basket, and the wax-pans. The engravings give a good idea of what these parts are and how they are constructed.

The outside pan is 27 x 17 inches. The compartment for the slumgum-basket is 5 inches wide, and as long as the pan is wide. The slumgum-basket is 4 x 16½ inches, having one-inch play to allow it to be slipped away from under the spout of the melter when necessary to empty it, without moving the melter or separator. The contents can be dumped in an old box; and later, after the season, put through a wax-press or dumped immediately into a solar extractor. The basket follows the shape of the outside pan. The whole separator is very easy to dump, and is self-cleaning.

If for any reason one is careless, or wishes to run lots of honey through the separator quickly, it will start little drizzling specks of dirt

from the contents of the basket, which will go into the wax-pan. In this case it would be better to put a piece of cheese-cloth inside the basket to catch all such specks of dirt. If left alone, and run as intended, just as every thing comes from the knives, the wax cake will be a bright, clean, yellow wax. The operator can melt comb honey, chunks, or cakes

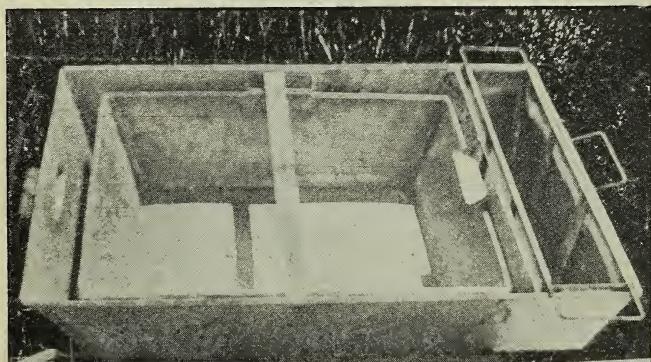


Fig. 2.—Severin's 1914 separator assembled.

of wax so completely and quickly he will wonder how it is done; and the separator will handle it as fast as it comes.

The wax-pan is 20 x 16 in., and 5 in. deep. There are two pans in this compartment. One rests down in the honey, and the other fits inside of it closely. Both slide under the spout. Consisting of two pans it has an advantage over the other form. By slipping both from under the spout, the cross-bar may be pulled out and the wax-pan inside lifted out. Then one need not get daubed up with honey. If for any reason one should fill the first pan, he can lift it out and shove the other one under the spout, put the cross-bar back, and keep on melting until that also is full. The outside wax-pan holds 36 pounds, and the other 35. I have never been able to fill either of these pans in a day's run, but have filled it from other wax. I have extracted from 13 to 15 cases of honey a day, getting from 18 to 20 pounds of wax.

This separator is probably too large for the average beeman, but can be made any size desired. The reason I made this size was because the wax cake fitted a gunny sack much nicer, and I did not have to stop my work when the separator was full, as

was the case with the 1911 separator. The new one has a great deal more slope than the one of 1911, and cuts all the surplus honey out, as the wax-pan closely follows the slope of the outside pan. There is a screw-cap outlet near the bottom to draw

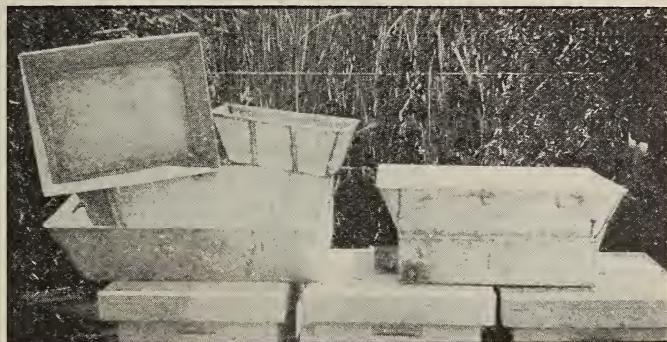


Fig. 3.—The new separator, showing the parts.

off the honey each morning down to the $\frac{3}{8}$ -inch partition. Always, when through with a day's work, the slungum-basket should be lifted out, a sack thrown over the separator to let all cool together. The next morning the large cake of wax is ready to take off. Where the slungum-basket was will be a $\frac{3}{4}$ -inch piece of solid wax, which must be removed to make room for the basket again.

A $1\frac{1}{2}$ -inch pipe carries the honey from the separator to my extractor-pipe. From there a $2\frac{1}{2}$ -inch pipe carries it into the tank.

Imperial, Cal.

REPORT ON APIARY INSPECTION AND DEMONSTRATION IN ONTARIO, 1914

BY MORLEY PETTIT
Provincial Apiarist

It has not been found necessary to make much change in the management of the inspection of apiaries from the methods reported at previous conventions. In accordance with a resolution passed at the last annual convention, more local inspectors were appointed than ever before; but with this exception the work has been carried on much as usual.

The inspectors' conference was held at the beekeeping short course in January at the Ontario Agricultural College. A letter, warning against danger of spreading disease by allowing bees to rob, was sent to the general list of beekeepers early in the spring, and the self-inspection report-forms went to the disease list of beekeepers in

May. These were given a hearty response by the recipients.

Twenty-one apiary inspectors were employed. Nine of these were strictly local inspectors; that is, they are practical beekeepers appointed to inspect bees in their own and adjoining counties. Eight have taken some training at the Ontario Agricultural College, and have returned to their homes to keep bees. They also acted as local inspectors. The four remaining men were sent out directly from the Ontario Agricultural College, after having received a special course of training in apiary inspection and in conducting apiary demonstrations.

One thousand three hundred and sixteen

visits were made to apiaries by inspectors during the season of 1914; and while in the European-foul-brood districts half of the apiaries visited were found diseased, only 31 per cent of the apiaries visited in the American-foul-brood district were found to be in this condition. In other words, whereas the inspectors went only to apiaries where disease had been reported or was strongly suspected, seven out of ten such apiaries in the American-foul-brood district were found to be free of disease. This shows that the educational campaign which we have been conducting for several years is bearing good fruit.

While it is exceedingly regrettable, it is not surprising that European foul brood is still spreading rapidly. Some new counties have been taken into the diseased area this year. It is only a matter of time when the whole province will be covered. Nothing but careful requeening with vigorous stock and advanced methods of management will save any apiary in Ontario from ultimate destruction. By our publications, demonstrations, and inspectors, practically every beekeeper of Ontario has been repeatedly warned, yet comparatively few have taken heed or will heed until the enemy is upon them, and they have suffered heavy loss. In the infected area the business has been reduced to the very few who have taken advice and are building up their apiaries again to a paying basis. These few are proving the truth of what has been said, and their evidence is of great value in the educational campaign still being waged in advance of the disease.

No doubt one reason for the indifference to warnings in the European-foul-brood counties is the fact that previously no bee disease had been known there. It is only this year that the American and European foul-brood territory began to overlap in Victoria County. From now on we can expect an increasing number of cases of the two diseases in one and the same colony. This will, no doubt, make it necessary to treat all such colonies by requeening for European foul brood, and by shaking for the American variety of disease.

Fifty-five apiary demonstrations were held in all parts of Ontario, with a total attendance of 1861 persons. In 1912 the average attendance was 25; in 1913 it was 32, and this year 34, showing an increased interest from year to year.

This report would not be complete without mention being made of the public spiritedness and the hospitality of several who have given their assistance. Fifty-five beekeepers have at considerable inconvenience allowed their apiaries to be used for demonstrations. In many cases their wives and other ladies of the neighborhood have provided refreshments for the demonstrators and for the beekeepers in attendance. Hundreds of other beekeepers have given a hearty welcome and cordial hospitality to the inspectors on their rounds. All this is very much appreciated, both by the inspectors and by the department, and goes a long way toward smoothing the path of the public servant, which is not always lined with roses.

Guelph, Ontario.

POWER EXTRACTORS DRIVEN BY FRICTION INSTEAD OF BY BEVEL GEARING

BY H. H. ROOT

Ever since beekeepers began to use power honey-extractors there have been complaints regarding several features in connection with the construction of the driving mechanism, and a number of beekeepers have substituted other devices such as clutch pulleys, loose pulleys with a belt-shifter, etc., the idea being to secure a more flexible device for starting the extractor, and one that could be operated with less effort, even when the hands are slippery with honey. Again, a number have written regarding the desirability of some scheme which would allow the pump to run all of the time instead of only while the reel is turning, so that it may have a longer time to do its work and thus be allowed to run at a some-

what slower speed. In employing a friction drive instead of the usual bevel-gear drive we feel that we have secured several important results—first, *doing away with the idler or belt-tightener*. This device has frequently been a cause of complaint; for, besides being rather hard to operate, it is difficult to get the proper degree of tension on the belt to start the reel as gently and yet as quickly as required. For instance, one notch may leave the belt too loose, while the next makes it too tight. Furthermore, a belt will not last as long when its "back is broken" by being bent both ways in passing over an idler-pulley.

Second, *allowing the pump to run all the time*.

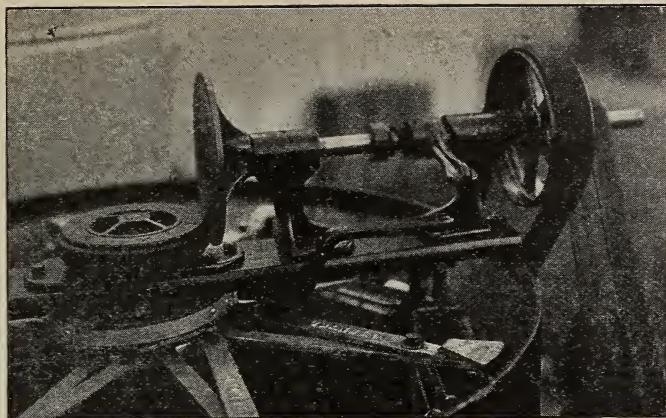


Fig. 1.—The cam-lever in a horizontal position, the extractor reel at rest.

With the friction drive the cross-shaft of the extractor runs all of the time as does also the pump. This means that the pump does not have to run quite as fast any of the time and consequently the load on the engine is reduced, and danger of slipping of the pump-belt is prevented.

Third, *allowing a variable ratio instead of a fixed ratio, as in case of beveled gears.* By this we mean that, in case the engine-pulley is not just the right size to turn the extractor at the proper speed, or if the speed of the engine cannot be controlled to the right point, the ratio between the driving-disc on the cross-shaft and the driven paper pulley on the vertical reel-shaft may be changed. Possibly there are some who do not understand the principle of what is known as the friction drive. It may be well to explain, therefore, that in this particular form of friction drive a metal disc with a perfectly smooth flat surface runs all the time, being located on the cross-shaft of the extractor. When it is desired to start the extractor-reel this revolving disc is brought into engagement with a paper-rimmed pulley on the reel shaft; and rolling against it, as it does, the reel speeds up, the rapidity with which it reaches its maximum speed depending entirely upon the amount of pressure brought to bear by the disc against the paper pulley. Now, if the

ratio of the drive is not quite correct—for instance, if the reel turns too fast, so that there is danger of breaking combs—the paper pulley may be raised, say, $\frac{1}{4}$ inch on the reel-shaft, so that it is nearer the center of the driving-disc, and then the disc will not drive it quite so fast. On the other hand, if the reel does not turn fast enough the paper pulley may be lowered so that it runs nearer the outside of the disc, making a higher speed.

Fourth, doing away with noise and danger of a breakdown. Beveled gears, unless submerged in grease, are noisy, and wasteful of power. There is also the possibility of breaking a tooth, due to the power being applied too suddenly, causing an expensive delay.

To show that the friction drive is ample as a means for transmitting power, one has only to point to well-known makes of automobiles such as the Cartercar, Lambert, Metz, etc., in all of which the friction drive is successfully used. The illustration on page 22 shows the friction drive as used in the Cartercar. The success of this particular make of machine in climbing grades even as steep as 50 per cent is too well known to need further comment here. From over a year's experience with the friction drive as applied to honey-extractors, we believe that the paper rim of the driven

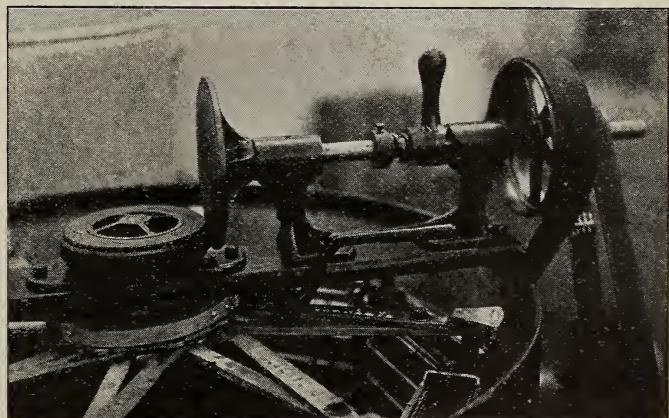


Fig. 2.—The cam-lever in the vertical position. The disk is thus crowded over against the paper wheel on the vertical shaft so that the reel turns.

pulley will last longer than a set of beveled gears.

TO OPERATE THE EXTRACTOR.

Fig. 1 shows the driving mechanism with the cam-lever turned down in a horizontal position. Fig. 2 shows this lever pushed up to a vertical position, in which case the cross-shaft and disc are crowded to the left so that the disc is in contact with the paper pulley on the reel-shaft, thus causing the reel to turn. There is only one adjustment necessary, and that is the position of the collar on the horizontal cross-shaft of the extractor, which receives the thrust from the spring when the cam-lever is in a vertical position. Fig. 2 shows this collar and the set-screw that must be loosened when the position of the collar is changed. If

position, the tension is released automatically by the shape of the cam to relieve unnecessary strain on the bearings. A very slight pressure on the part of the disc against the paper wheel is sufficient to keep the reel moving at high speed, when it is once under motion; therefore the adjustable collar should not be located any closer to the cam lever than is necessary to keep



Fig. 3.—Ideal arrangement of extractor, pump, engine, tanks, etc.

this collar is too close to the cam-lever the tension on the spring when the lever is in the driving position will be too great, causing an unnecessary strain on the bearing. On the contrary, if the collar is too far away from the lever there will not be enough tension to drive the reel.

It will be noted that the shape of the cam-lever is such that the greatest tension on the spring (and consequently the greatest thrust) occurs when the cam-lever has been moved up about half way to the vertical position. A little more tension is needed at the start to get the reel speeded up; but when the proper speed has been reached, and the lever moved on over into the vertical

the reel turning at full speed when the lever is in a vertical position. When the adjustment is correct the lever will turn up or down easily, requiring very little effort.

LOCATING THE MACHINERY AND TANK.

Fig. 3 shows the arrangement of the extractor, pump, engine, tank, etc., that we recommend. The outside door to the extractor room should be on the side nearest the capping-melter or uncapping-tank, so that the full supers will not have to be carried about the room any more than is absolutely necessary. All new belts will stretch slightly at first, after they have been run a short time. It is well not to locate the engine, pump, etc., too permanently at



Fig. 4.—A closer view of the pump, showing the connections.

the start, for they will surely have to be moved slightly one way or the other to make up for the stretch of the belt. After the belts have once been "broken in," any further stretch is so slight as to be almost imperceptible.

The pump-base is secured to the floor by means of large screws or a small coach or lag screw. These should be started at the end of the slots furthest from the extractor, so that, as the belt stretches, the pump may be moved back away from the extractor slightly by loosening the screw. Fig. 4 shows a closer view of the pump and its connections to the extractor, through an opening in the gate. This connection does not inter-

fer with the opening of the gate if desired. In this position the discharge pipe that takes the honey from the pump to the tank is out of the way and does not interfere in any way with the operation of the extractor.

The engine does not require a stone foundation, an ordinary wooden floor being solid enough unless the timbers are in very bad condition. We usually secure the engine to the floor by boring a hole through each end of each skid and inserting long lag screws into the floor through these holes. A somewhat easier plan, and one that permits some change in location on the floor, is to select two pieces of 2 x 4 material, each a trifle longer than the width of the engine-bed. Cut a notch in each end so that the piece will fit down between the handles at the ends of the skids. Bore a hole in the center, and then by inserting a long lag screw into the floor the

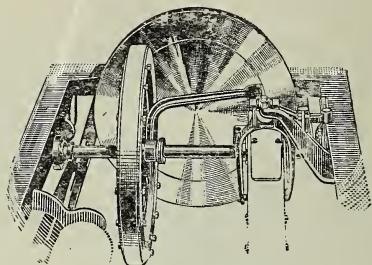


Fig. 5.—An extractor located on the floor is much more convenient when it comes to putting in or taking out combs.

slightly and the engine pushed back away from the extractor, to make up for the stretch of the belt.

Fig. 3 also shows a good arrangement for a strainer. This is a combination of strainer and settling-tank which works admirably. A small barrel with both heads knocked out is as good as any thing for the inner can. Heavy cheese-cloth is firmly tied over the lower end, and the barrel supported as in the illustration, so that the cheese-cloth is three or four inches from the bottom of the main tank. The honey is pumped into the inner tank (or barrel); and as soon as it reaches a level above the cheese-cloth the bits of cappings and all foreign matter will float to the surface away from the cloth so that the latter may accomplish its purpose of straining the very fine particles without becoming clogged. For best results the

honey should be allowed to fill the large tank nearly full before any is drawn off, and it should be drawn off no faster than



Friction drive of Cartercar

any is pumped in, in order that the level may be kept well away from the cheese-cloth.

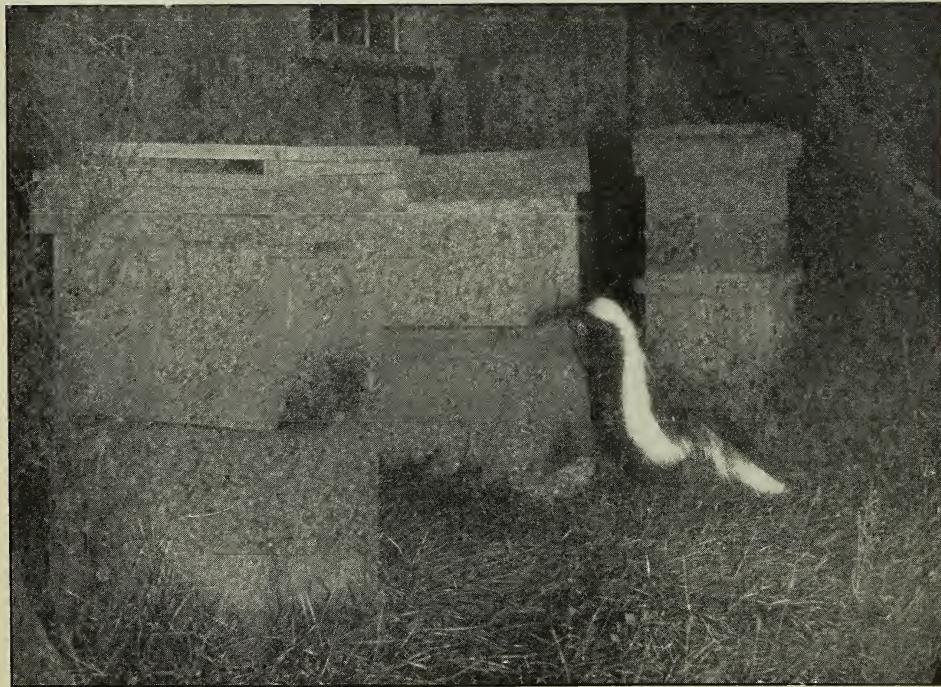
POLECATS IN THE BEEYARD

BY H. R. BOARDMAN

I have been aware for some time that skunks seemed to be attracted to my beeyard. I have found them occasionally scratching at the entrance, but it did not

dawn upon me that they were robbing the hives of the live bees until quite recently.

During the moonlight nights of October and November I caught them on their job.



Flashlight of polekitty robbing H. R. Boardman's hives.

By scratching the hives the bees would be disturbed and run out at the entrance to drive away the intruders. These expert night robbers, without gloves or veil to protect them, would gobble the bees up, apparently fearless of stings, "and workin' with a zealous worthy a nobler cause"

I think the loss of bees quite serious. I have 115 colonies in the yard, and most of them, I think, have been worked by the skunks. What the skunks are doing to my bees they are doing to the bumblebees.

Look carefully, Mr. Farmer, and you will find many of the holes in the meadow and pasture you thought were dug for grubs were dug for the nests of bumble-bees. And



Caught with the goods on. Another remarkable flashlight photograph.

don't forget the nests of Bob White, because the echo of his sweet song is far more pleasant than the "aroma" of the skunk.

Collins, Ohio.

BEEKEEPING IN SOUTH AUSTRALIA

BY A. P. HABERECHT

In my locality the season ending last May was one of the best I ever experienced. My average for 66 colonies was 125 lbs. extracted honey, and all supers full of stores; about 2500 lbs. of surplus, which, if I could have extracted, would have brought the average up to 161 lbs. per colony; but on account of the coolness of the weather and the thickness of honey I was unable to do so. The honey-flow lasted up to the end of April.

My honey was so thick that I could do nothing with it below 90 degrees, and only at 100 would it extract freely. My reason for this was continual high winds during the main honey-flow, the bees working only mornings and evenings, and fanning all the rest of the time. My bees worked very evenly this season, 50 per cent best, 40 per cent well, and 10 per cent that brought about 60 lbs. of surplus—no difference as to color or breeding. The best Italians seem to fly earlier and faster, but do not seem to put more into the comb-bucket. The only conclusion I can come to is that they must consume more stores.

The red gum (*Euc. rostrata*) turned out a complete failure with me last season; but it looks very promising for next season.

The yellow box (*Euc. melliodora*) bloomed from the beginning of September to the end of February, which happens only once in a lifetime. It usually blooms from the end of July to about the end of October; but this season it has no buds, so there will be no bloom on yellow box next season at all, perhaps only an odd tree. The gray box (*Euc. hemiphloia*) bloomed very patchy, but a good sample (our fall honey).

I sold 75 per cent of my honey to the consumer at 8 cents per lb., and 25 per cent to dealers at 7 cents, and my beeswax was sold at the market at 28½ cents, the highest price I ever had for beeswax.

I would strongly advise all apiarists to do their best to sell as much as possible to the consumer, get their honey up in suitable lots, and make a house-to-house canvass; but the honey must be put up attractively. There is a great future for the apiarist; but he must keep on teaching the people to eat honey. You will find that, the more people eat honey, the better they will like it, and the more they will eat. I cannot say that I know of one person who said, "I used to eat honey, but now I do not care for it."

My experience is, if a family takes 30 lbs. of honey this season I am sure they will

take 60 next season. The trouble is to induce them to buy the first lot, however small it may be; but if the advertising and the canvassing are left to the dealer we are lost.

My idea is to sell all the best honey first, tell the customer that all the best honey is sold out, get him to taste the other, and he will take it and be satisfied, even if it is inferior. But he will get in earlier next season and buy more than ever. I sold all my best first, and the fall honey went just as quickly afterward.

Our Royal Agriculture Show took place at Sydney at Easter time. The weather was perfect, the attendance a record (95,000 people on Good Friday, the main day); but the bees and honey exhibits were very few and poor. I went 360 miles to see it, and I was very much disappointed. I exhibited

only in the district exhibit. There were practically only two exhibitors and one experimental farm instead of about twenty or thirty contributors; but our brother apiarists do not seem to care or bother so long as they get their honey away at any price. Our district honey exhibit got 18 points out of a possible 20, so we did fairly well.

Perhaps it would be interesting to some of your readers to know that my grandfather brought one colony of bees from Germany with him in 1848. Bees were then unknown, so far as I know, in South Australia. They were twenty weeks on the water, and came out in good condition. The first honey was sold at 25 cents a pound, and the first swarm sold brought 5 pounds. Those bees were pure blacks.

Henty, N. S. W., Australia.

THE HODGSON BEE-ESCAPE BOARDS

Auto Truck in the Apiary, and New Twelve-frame Friction-drive Extractor

BY R. F. HOLTERMANN

There has already been some notice of the Hodgson bee-escape board, which has a wooden frame with the main part of it wire cloth. This is the invention of Mr. Arthur F. Hodgson, Jarvis, Ontario.

The ordinary bee-escape board has been objectionable to me because, owing to lack of ventilation when put under the supers, only one super can be put above it at a time. When we go into an apiary we want to make a complete job of extracting in one day. Next, the bees being off the combs for some time before extracting, and the heat of the bees being shut off by the solid bee-escape board, the honey cools, and therefore it is more difficult to extract. Of course this latter difficulty has been overcome in part by the use of power extracting-outfits.

Last season I saw the way in which these escape-boards worked at the apiary of my son Ivar, and it was practically demonstrated to me that they are the proper thing for a well-equipped apiary. I have now 250 of these escape-boards, made for me by Mr. Hodgson. This is enough for the apiary we may be extracting in, and for the apiary in which we may want to extract the following day. I use a double-outlet Porter bee-escape in each board; and because of these two outlets instead of one I think the bees leave the supers in about half the time.

RESULTS.

The boards have proved themselves a very great success. We have put them on at almost every hour of the day. Our prac-

tice for quick work is for one to lift the super, another to smoke, and a third to slip the escape-board on the hive. This is particularly desirable when there are two supers on a hive; but one can do the work by removing the super and setting it down until the escape-board has been placed on the hive. This year, however, we did not have many second supers, and in no case was the second super full. The escape-boards are best put on quickly after the super is raised and the super returned as quickly. This prevents, to a very great extent, the bees from getting between the surfaces of contact, and thus, of course, killing bees or taking a long time to brush them away.

As to the time it takes for the bees to leave the supers we found it quite feasible to remove the supers five or six hours after the escape-boards were put under them, thus enabling us to put some of the escape-boards on in the morning, and extracting from them the same day.

I found that the bees begin to roar very soon after they are separated from the brood and queen below (their action is the same as if they had been smoked too much). Mr. James Armstrong, Cheapside, Ontario, a well-known beekeeper, told me that he and his son go to the hives soon after putting on escape-boards; and unless the bees are roaring, which can be heard from the outside, they know there is something wrong, and they investigate to find out what it is. Per-



Holtermann's power truck with a load of empty 12-frame supers.

haps some beekeepers do not know that, if the queen and brood are there, the bees will remain contentedly in the super.

We found a few young bees in some supers; and occasionally, after being on only five hours, some more bees; but there were not enough left to make the removal of the supers of honey inadvisable if they were needed that soon.

I remember coming to a super with a lot of bees on the combs, and saying to one of the students, "We will investigate the cause. Perhaps the bee-escape is clogged."

We found the escape raised at one side so the bees could pass back into the super, so that there was really no bee-escape board on that hive.

The honey extracts readily with the twelve frame friction - drive extractor. We have now used these boards in five apiaries, and there will be no more shaking and brushing of bees from the combs of honey in the supers.

In the years gone by I myself have nearly always had the work of removing the honey from the hives and freeing them from the bees by sharp shakes; and I have found this no light work when followed up day after

day about as fast as a rather active man can move. It jars continually the whole system.

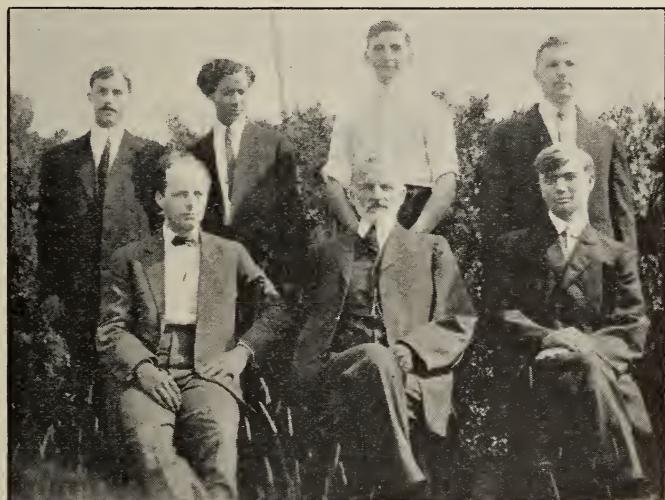
Another advantage in the bee-escape board is that it prevents the demoralization of the apiary at a time when it tends to robbing and the making of cross bees. However, let me sound a note of warning. There must be no chance for robber bees to get into the super from which the bees have been cleared.

THE AUTO TRUCK FOR TRANSPORTATION.

Accompanying this article is an illustration of the auto truck

I have purchased to use in connection with aparian work. As seen in the illustration it is loaded with forty supers (twelve-frame), containing combs which have been extracted, and which are about to be returned to the apiary from which they have been taken.

I find this truck a very great advantage. It has a capacity of 1500 lbs. weight. There are times when a truck of greater capacity would be very convenient; but the desirability of this increased capacity is confined to so short a time that it would, in my estimation, be more than counterbalanced by



R. F. Holtermann with his son Glenn and five students, who were with him during the season of 1914.

the extra expense of running the heavy truck.

This truck can be run into a beeyard, and loaded or unloaded without any fear about stinging horses; and there are not many days in summer when rain prevents its use.

We used the Hodgson wire-cloth bee-escape boards this season, as before stated, thus doing away with all brushing and shaking of bees from the combs of honey, and extracted the honey from seven apiaries at two points. If the honey crop had been anything like a normal one, of, say, 50 lbs. to the colony, it would likely have paid us better to move the honey-extractor to the honey instead of moving the honey to the extractor.

Another use for the truck is to transport the workers from home to outyards. From the accompanying illustration it will be seen

we had quite a number of learners and workers—one each from New York, Pennsylvania, Jamaica, Cuba, Wales, and three from Ontario, Canada. The one from Wales and a lady from Ontario do not appear in the engraving.

THE FRICTION-DRIVE EXTRACTOR.

While on the subject let me say we substituted for the bevel gears on the twelve-frame extractor a friction drive, and also ordered another with this equipment. We found a wonderful improvement in the running of the extractor. A great advantage is that the honey-pump runs all the time, keeping the bottom of the extractor always in view. The extractor, too, can be operated with less trouble. Every power extractor should be operated by means of friction.

Brantford, Canada.

PURGATIVE DRUGS FOR BEE PARALYSIS

BY M. Y. CALCUTT

I have noticed in GLEANINGS for several years past more or less discussion regarding that peculiar disease known as bee paralysis. It is to me the most peculiar of all bee diseases I am acquainted with. I have had my experience with American foul brood, but am no longer alarmed over its visit to my apiary as I have learned how to handle it successfully. Bee paralysis I have also been visited with, and have successfully coped with it, so I do not dread its call, although I am not hankering after future visits. But I am not sorry for the visit I have already had, because I am somewhat like that grand old beekeeper, Dr. C. C. Miller. I have had more than my share of enjoyment attending to the bees, overcoming their affliction, and keeping them out of their difficulty; so, as A. I. Root says, it is a great satisfaction to feel that you are able to conquer the difficulties that are presented. It has always been my hobby to tackle something that people say cannot be done. Our pleasure lies in demonstrating that it can be done if we only have the patience to go ahead and do it.

Now, Mr. Editor, let us take a good look at this strange disease and see what is the matter. Some say it is due to the honey they gather, and some say it occurs only in hot weather. Others tell us it is due to the queen, and that queening is what we must do to get rid of it. Now, I have found that they are all wrong. It is not due to the honey they gather at all, as I have had bees afflicted when they did not gather any honey,

nor had they anything but white-sugar syrup. Then, again, I have cured them without any change in the queen. Now, N. L. Stapleton, of Colquitt, Ga., page 723, Oct. 15, 1913, will say, "Yes, but you had a suspension of brood-rearing." No, not at all. The queen kept right on laying, and the cure was effected just the same.

What is the cause of it? The bees become pollen-clogged; and unless they are relieved they will die. How can they be relieved? If they are not storing honey in the supers, just give them a cascaret dissolved in a little water and mix the same in a jelly-glass of sugar syrup, 1 to 1. It is well to repeat this for three or four days according to the size of the colony, then the trick is done.

Now let me add that I fully agree with Mr. Stapleton in all he says, with the exceptions as here stated. A discontinuance of brood-rearing will also effect the cure. If they are storing honey in the super this is the proper method to cure the disease.

Some writer has said we cannot cure it and get a surplus the same year. Now, this is wrong again, for I am doing it right now. To explain, last spring I had a colony badly affected. They were pulling them out by the hundreds, and they were hopping in all directions. As they crawled around they resembled laying queens. One would think they would burst, so distended were their abdomens. This colony was on a Hand switch bottom-board, so I put the queen into the empty hive with a frame of brood,

and threw the lever, switching all field bees to their new hive, giving them the cascaret as mentioned. The other half raised a queen of their own. Here Mr. Stapleton is corroborated in his experience—brood suspension. The other half, with queen and field bees only, cured by the cascarets. When these two halves had built up, which they

did by feeding syrup, I united them again and put on supers, two queens working here; and now they are hard at it, storing in the supers. So we have nothing to dread here. Just pass this along to our bee-friends, and they can try it out for themselves. It is worth the trying.

Seattle, Wash.

THE ALEXANDER METHOD OF INCREASE

BY J. G. BROWN

[The writer of the following article was a beekeeper in Pennsylvania; and after that he removed to Colorado, where he spent eight years in the business. He is now with the A. I. Root Co. as assistant apiarist in the A. I. Root Co.'s apiaries.—ED.]

I read with a great deal of interest Dr. Miller's reply to A. Swahn, Dec. 15, page 979. I wondered at the time if the doctor had been educated for a lawyer, or how he managed to get so much sarcasm into two inoffensive-looking little questions as the following: "What successful man doubles his white-clover crop by dividing his colonies before the white-clover harvest?" "What successful man (or unsuccessful) increases his white-clover crop *each* year by dividing his colonies before the white-clover harvest?"

In reply to the above I'd like to ask Dr. Miller if he ever tried the Alexander method of increase, using it just as Mr. Alexander did, and leaving out nothing "because he knew it wouldn't work."

Mr. Alexander does not say that he gets "twice as much" honey when he divides as when he doesn't, but "nearly twice as much." Dr. Miller makes no room whatever for poetic license. Mr. Alexander further says that he has two good strong colonies in the place of one to commence work on the clover harvest. But he does not say they are of equal strength, nor does he say they are "as strong as" the one not divided. The fact that he says they gather "nearly twice as much" implies that he meant they were not quite equal to one undivided at the *beginning* of the season. Mr. Alexander doesn't even say he gets *any* more white-clover honey, but that he has two good strong colonies ready to go to work in place of one. Mr. Alexander gives two illustrations, and in each case he recites what was accomplished at the *end* of the season.

As a further proof that Mr. Alexander did not mean that the white-clover crop would be doubled, he speaks of the new colony on the old stand being "in fine shape for a super of sections," but he does not say the other colony is in shape for a super of sections.

Mr. Alexander began by using what he

called fairly strong colonies about April 15, with a queen not over ten months old, and these he fed every day they couldn't get nectar up to and after dividing them. One queen was laying her best up to June 1, and after that he had two queens laying. The first colony contained all the field bees up to May 26, and had a hive nearly full of brood. The second colony had the young and hatching bees, and a young laying queen after about June 1. The flow began about June 15, so the second colony had bees old enough to go to work on clover.

From this time on until the close of buckwheat Mr. Alexander had two colonies gathering honey in place of one. It must be remembered that Mr. Alexander ran for extracted honey, and I have no doubt he was well provided with good brood-combs so that each colony had a hive full of combs at the outset.

Dr. Miller in calling for examples, like the angel at Sodom and Gomorrah, is willing to be "Jewed down" a little. He asked for two living examples of successful men who doubled their white-clover honey by dividing their bees, or two successful (or unsuccessful) men who increased their white-clover crop by dividing their bees before the harvest. Some of us might get into the discussion by way of the parenthesis. If Dr. Miller will concede that white clover isn't the only flow there is, perhaps some of the beekeepers of the West who really keep bees, and, in return, are kept by them, may be able to break into the discussion.

The Alexander method of increase, on the whole, is all right and sound doctrine. That, like all other methods, will have to be adjusted to fit the locality where it is to be used. This is not merely belief, but to me personal knowledge. I used it in Colorado, but fed outside instead of using individual feeders. The result was, colonies were boiling over with bees much earlier than the apiaries where not so stimulated. Both

parts of the colonies divided on this method were, in a few cases, ready for the first alfalfa flow, beginning about June 18, while others did not go into the supers (comb honey) till later.

But I should like to give Dr. Miller the names of some of the bee-men of Colorado who use this method to a greater or less extent in making increase, unless he insists on the white-clover test, and that would, of course, shut the Western beekeepers out.

Mr. J. C. Mathews, of Montrose, Colo., who owns and operates 1000 colonies, who is successful in the commercial end of bee-keeping as well as the theoretical, uses the Alexander plan very largely. Mr. Mathews says he regards it as the best-known plan of increase.

Mr. E. D. Nichols, a beeman of many years' experience, of Montrose, Colo., uses this method of increase, and says the two resultant colonies will produce much more honey than the one undivided. Mr. Nichols keeps a close record, and can tell each colony that gave him surplus and how much. Mr. Nichols uses a comb-honey super on the colony on the old stand, and an extracting-body on the other for the first super.

Mr. J. J. Corbut has had a large experience in building up colonies, and he uses the Alexander plan largely. Mr. Corbut is a very observing man, and pays plenty of attention to details. When he adopts a method you may be sure there is a good reason for it.

William Corbut and Marion W. Harvey use the Alexander plan with the Doolittle plan and the Dr. Miller plan, and endorse all of them. This, of course, depends on what they want and the method they use.

Mr. Roscoe Miller, president of the Montrose County Beekeepers' Association, and a man owning nearly 1000 colonies, uses this method of increase. Mr. Miller does not believe in sacrificing honey for increase,

and yet he believes in the Alexander plan. Don't get the idea that those beekeepers never use any other method. They are keen, wide-awake, practical men, always ready to take up any thing good or to try it once; and these men consider the Alexander plan, adjusted slightly to suit their conditions, a good practical method, and one with which any one who is willing to take pains can be successful.

Mr. Geo. H. Rea, head of the apairy department for the A. I. Root Co., used the method in Pennsylvania, and knows it will work when followed in detail.

If Mr. Swahn will provide himself with a copy of "Alexander's Writings on Practical Bee Culture," and for good measure throw in a copy of "Management of Out- apiaries," by G. M. Doolittle, and read them during the present winter, he will be able to increase materially his honey crop any season by following these two able writers. Even if he have but one colony I think he will be able, with his increased knowledge, to pay for these two publications in increased amount of honey the first year.

I think, Mr. Editor, you should not omit any detail of this method from your next edition. Remember your book and your magazine are read by professionals as well as novices, and the former class, at least, prefer to do their own eliminating when necessary. Don't conclude that this method is wrong without a proper hearing. Dr. Miller has given his opinion, but does not say it is based on any fact or experiment which has proven the contrary "in his locality."

Your own apiarist is of the opinion, backed by numerous tests that he can demonstrate to your entire satisfaction, that he can increase your *white-clover* crop by following the Alexander plan in detail and omitting nothing.

GUARDING AGAINST BEESTINGS

BY RUTH C. GIFFORD

It is a peculiar sensation to be so badly stung by bees that every one, yourself included, thinks you are going to die. Few beekeepers in this community who have that sort of experience ever handle bees again. I happened to be one of the people who kept on; but the time I had could not be described by the word "pleasant." Of course the only thing for me to do was to use a suit that was practically sting-proof. As I could not find either a description or

an advertisement of that sort of suit I had to experiment. Every time the experiment did not work I got stung literally as well as figuratively. The amount of ingenuity shown by those bees in finding places through which to sting was simply wonderful. However, I think my troubles are over so far as a bee-suit is concerned, because I have not had to modify this one during the past two seasons.

I am now going to describe my suit. If

any woman makes one like it, and follows these directions carefully, I don't see how she could be bothered by stings. The suit consists of gloves, bloomers, and a blouse and wire bonnet, which are sewed securely together. The material for bloomers and blouse is unbleached muslin. The bloomers are made very long. The top is held securely around the waist by a long drawing-string. They are also fastened securely around the ankles, over high shoes, with two more drawing-strings. If they are not made long they will pull up, and the bees will sting around the shoetops.

The gloves are men's heavy goat-skin work-gloves. They have a disagreeable odor; but a thorough smoking with a bee-smoker will help that. The bees don't bother by stinging through these, even when they are wet. I always sew a three or four inch strip of muslin to the tops of the gloves; then they won't pull out from under the sleeves of the blouse.

The blouse has the sleeves made long with elastic in them around the wrists. The body part is very wide. To be on the safe side it should be $2\frac{1}{2}$ times as wide as the coat. Another drawing-string fastens it around the waist. The neck is cut out until it fits around the bee-bonnet comfortably.

The bonnet is the most important part of the costume. Take a piece of ordinary wire mosquito-netting, 10 x 34; wrap one end over the other and sew securely. Over one end of this wire cylinder sew a round piece of muslin and bind the edges of the other

end with two thicknesses of muslin. To this sew a five-inch muslin curtain. Then, if it gives you the headache to look through the netting, cut out a rectangular piece of wire. Don't make this any larger than necessary. Bind the edges of the opening with a narrow strip of black material. Measure off a piece of fine wire, such as you use in wiring brood-frames, long enough to go twice across the long way of the rectangle, and another piece long enough to go across the narrow way five times. Put these in so the spaces between them are about equal, and twist each wire around the other. That prevents them from pulling in any direction. To do this, fasten the ends of the wire which run the long way last. These two ends will, of course, come on the same side. If you want to take the shine off the wire, soak it in lemon-juice for a few minutes or in hydrochloric acid about one minute before you use it. After the wire is in, sew a piece of silk tulle over the space, and leave it loose. Then put on the bonnet and blouse, and have some one sew them together.

This suit sounds complex; but if you happen to be one whom the bees take a special delight in stinging you will find it very convenient. The bloomers and blouse can be made "any old way," just so they're big, and sewed tightly. This suit will last several years, and only a few minutes are required to rip out the bonnet when the suit needs washing.

Northeast, Md.

BEESWAX IN EGYPTIAN TOMBS

BY GEORGE BUTLER

During the visit to Queensland of the members of the British Association for the Advancement of Science some very interesting particulars were elicited from Professor G. Elliott Smith with reference to his researches in Egyptian tombs. He is a scientist of considerable note, and any information coming from such a source would not be questioned by any living man. He is a great authority on the mummies of Egypt, and at one time held a prominent position in that country under the government. The subjoined information was the outcome of a letter received by the writer from a fellow-beekeeper in Queensland, who stated that the professor, in conversation with a friend of his, had mentioned that, during excavations in Egypt, he had discovered a jar of honey, the odor from which was sufficiently strong to attract the attention of bees which were flying near. To obtain a

verification of these facts the writer communicated with Professor Smith, who supplied some interesting facts on the subject.

Mr. Smith said that, several years ago, in the course of excavations in the valley of the tombs of the kings at Thebes, the tomb of the parents of Queen Tiy, wife of the Pharaoh Amenhotep III., was discovered, and among the rich furniture found in the tomb was a large alabaster jar containing a thick honey-like liquid which Mr. Theodore Davis, who supplied the funds for the excavation, mistook for honey. The professor ridiculed the supposition that honey would remain in a liquid state for thirty centuries in a dry climate like that of Egypt. When investigating the contents of the tomb he took a sample of the honey-like substance, which smelled like castor-oil, and asked the Government Analyst in Egypt

(Mr. Lucas) to examine it. The surmise he had entertained was found to be correct. It was castor oil. This statement was somewhat disappointing.

It appears the Egyptian women, both in ancient times and at the present day, use castor oil for dressing their hair and anointing their skin to keep it soft. The profes-

sor, however, found considerable quantities of beeswax in ancient Egyptian tombs. It was used to make shields to protect the eyes, ears, nose, and mouth of mummies, and to preserve their features from injury. The ancient classical writers say honey was also used for mummifying.

Red Hill, Brisbane, Queensland.

MINNESOTA CONVENTION REPORT

BY HARRY G. BRANT

The Minnesota Beekeepers' Association held its annual meeting in the Engineering Building of the State Farm School, Dec. 2 and 3, in connection with the Minnesota State Horticultural Association. About one hundred beekeepers were present, quite a few ladies among them. The excellent program was followed out, and a profitable and enjoyable time was had by all. Here is the program:

WEDNESDAY FORENOON.

9:00. Social hour.
10:00. Meeting called to order. Reading minutes of last meeting. Report of Secretary and Treasurer. Correcting wording of Constitution.
11:00. Bee-inspector's Report. J. Alf. Holmberg. Address, "Bee Disease," C. D. Siehl. President's address.

WEDNESDAY AFTERNOON.

2:00. "Progress in the beekeeping industry in Minnesota the past year," Francis Jager, Prof. of Apiculture, Agricultural College, A. F. Woods, Dean of Agricultural Department, University of Minnesota.
The Law of Mendel applied to the breeding of bees, C. E. Bartholomew, Prof. Apiculture, Iowa College.
3:30. Symposium on comb-honey production: "Fastening foundation in sections" (a demonstration), L. M. Bussey.
"Fastening Foundation in Split Sections" (a demonstration), L. D. Leonard.
"Spring management for comb honey," L. F. Sampson.
"Putting sections on hives," Geo. W. Shafer, Menomie, Wis.
"How to get well-filled sections," Jos. Moser Calmar, Iowa.
"Removing sections from the hive," L. A. Stickney, Minnesota City, Minn.

"What to do with unfinished sections," C. S. Russel, Pine City, Minn.

"Packing and crating honey," Peter Howe, Kellogg, Minn.

THURSDAY FORENOON.

9:30. "Marketing honey," P. A. White, Barron, Wis.
Mrs. M. McCabe, Minneapolis; F. E. Lang, La Crosse, Wis.; Mrs. F. J. Butterfield, Long Lake, Minn.; O. J. Goodmansen, Little Falls, Minn.; Mr. Fred Oesch, Winona; L. M. Bussey, Minneapolis.
"Bees and flowers," P. R. Little, St. Louis Park.
11:00. Beginners' hour and question-box.
Mrs. J. A. DeLameter, Mrs. Mattie Watts, Mrs. F. E. Halden, Mr. H. G. Brant.

THURSDAY AFTERNOON.

2:00. Symposium on extracted honey.
"Preparing bees in spring," C. D. Blaker.
What to do at commencement of honey-flow," Frank Schillock.
"How to prevent swarming," C. F. Greening.
"Methods of uncapping and extracting," P. C. Van Someren.
"Uncapping-knives," H. V. Poore.
"Why flowers do not always produce nectar," E. L. Hofmann.
"Management of bees after the honey-flow," F. W. Ray, Prof. Francis Jager.

Among those present were quite a few students who are taking the course in apiculture. The following officers were elected for 1915:

Rev. C. D. Blaker, Minneapolis, president; first vice-president, Rev. J. Kimball, Duluth; second vice-president, Mrs. J. A. De Lameter, Hopkins; secretary and treasurer, F. W. Ray, Minneapolis; Executive committee, L. C. Pilcher, St. Paul; L. F. Sampson, Excelsior, and Mrs. M. McCabe, Minneapolis.

PUTTING BEES IN SELWYN'S CELLAR

BY G. F. K.

A description of Mr. Selwyn's bee-cellars at Kirk's Ferry, Quebec, appeared in the Sept. 1st issue, p. 676. The bees were carried into this cellar Nov. 15. The morning was clear, the air crisp, the temperature a few degrees below freezing.

The apiary is situated on the side of a hill, and the hives are scattered in all directions, the unevenness of the ground making a definite arrangement impossible. The hives are of the eight-frame size, some fitted

with the excelsior cover and some with a packed galvanized-iron cover. Between the top-bars and the cover are two thicknesses of cloth—the lower one of 10-oz. duck, and the upper one of burlap cut from an old sack. In some cases, where an excelsior cover was used, the moisture from the bee cluster had condensed and the cloth was frozen stiff.

The entrances of the hives—full width but only $\frac{3}{8}$ inch deep—were blocked with tissue

paper stuffed in. This proved an excellent way of closing the entrances as long as the paper kept dry; but during the morning a blizzard caused the snow to dampen the paper, and in some few cases the bees found their way out.

The hives were arranged in the cellar on long scantlings forming racks, three tiers to the row. The covers were removed as the bees were carried into the cellar, leaving only the thickness of the duck and burlap over the bees.

When all the colonies were in, the doors

were closed and all means of light excluded. By the light from a candle the entrance papers were quickly removed and then the bees were left to care for themselves till Christmas. At that time the brood-chambers were raised in front by a block of wood, leaving an entrance about $\frac{7}{8}$ inch deep.

The temperature of the cellar seldom varies more than two degrees either way, the desired temperature being 38° . The 18-inch cement walls and the sub-earth intake pipe keep a uniform temperature until late in spring.

DEVICE FOR CUTTING OUT NATURAL CELLS FOR QUEEN-REARING

BY J. H. TODD

The illustration shows you a queen-cell cutter for queen-rearing which I have designed. The method of getting cells is as follows:

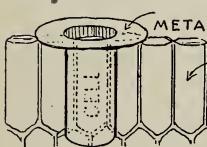


Fig. 1.

From the brood-nest of your selected queen take a comb containing newly hatched larvae in the center, and with a thin sharp knife

cut out a piece of this comb containing a sufficient number of larvae newly hatched. Return the comb, and the bees will quickly repair the damage. Now take this piece of comb indoors, as if proceeding to graft in the usual way, and, with an uncapping-

knife, shave down to the midrib the cells on the side of the comb opposite to those selected. Have a little molten wax at hand, and lay your comb midrib down on a piece of flat

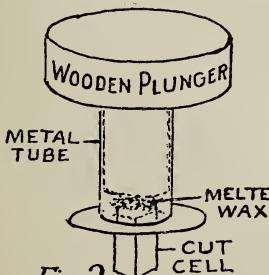


Fig. 2.

smooth board; then, grasping the tin flange of the cell cup in your right hand and the wood flange in your left, pull them apart. Place the cutting edge of the tin tube exactly over a cell containing a larva of the correct age, and carefully press it down without twisting, keeping the cell in the center of the tube till the midrib is cut through; then lift up the tube containing the cell; dip the end of the wooden plug in the molten wax and quickly press it home

down the sharpened end of the tin tube. The molten wax will stick to the cell base and fix it, and will also provide a thick base for the cell. The pushing home of the plug will make the mouth of the cell project the correct distance beyond the tin flange, which in its turn will form a base for the bees to attach the queen-cell to.

The cup is now placed in a holding bar in a manner similar to a Swarthmore cup,

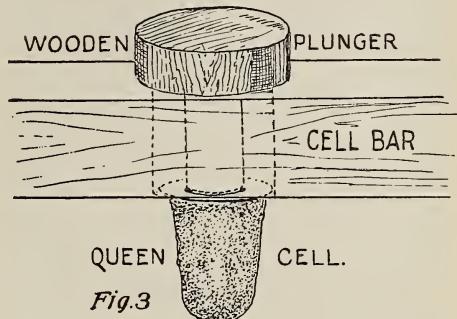


Fig. 3

the hole being of such a diameter that the tin flange will just pass through it, and the bar of such thickness that, when the cup is in position, the tin flange is flush with the under side of the bar.

I think the advantages of this cup are obvious. It is much more simply and rapidly prepared than by either the grafting method or the Swarthmore method, the queen laying directly in the cups; and, above all, in comparison to the usual method of grafting, the larvae are never man handled, and these delicate little insects go to the cell-building bees without removal from their cells, and in their natural state, suspended in their chyle food just as supplied to them by the workers.

Christ Church, N. Z.

PROFITS IN TAKING BEES FROM TREES

BY ELIAS FOX

I have been reading your comments on taking bees from trees. Now, I am in no position to tell upon what your ideas are based; but they are surely not based on facts—at least as applied to my experience, which was set forth in GLEANINGS some years ago, and again in my comments upon the writings of Mr. Chadwick, of California.

As to whether or not it was profitable to save bees from trees when cut, I thought I had proven conclusively that it was; but, judging from your conclusions, Mr. Chadwick's ideas, based upon guesswork, were accepted in preference to mine, based upon a personal and practical experience; but, no matter. I know I am right, and presume I have had as much practical experience as any man in the United States, and that is taking in a lot of territory. I realize it, and I am willing to take back numbers of GLEANINGS on your file, and compare notes with anybody along this line.

All of my transferring from trees to hives has been done in the fall, and most of them late at that, and as late as November 27. I have yet my first colony to lose in wintering, so taken. Many of them have given me 100 lbs. of choice extracted honey the following season, and had plenty left for wintering. Only a few years ago I cut fourteen trees in the fall, and out of the trees cut I saved ten good colonies. Sometimes a tree will break in falling where no small trees are handy to let them fall upon, and in such cases a queen may be lost or a portion of the bees mashed. At such times I doubled; but you can see that the per cent of such was small when I had ten good swarms out of the fourteen; and the beauty of it was, I had ten good colonies the next spring; and when fall came I had twenty good stocks and 1000 lbs. of fine honey.

Now, who, in the face of this, can say it is not wisdom to transfer bees from trees cut in the fall? I have never done this, simply because I have never had the opportunity; but I will bet some money that I can transfer a swarm in this manner in December or January, and save them. When you look at it from a reasonable standpoint, why not? If trees are cut after the brood is all hatched you have exactly the same conditions that you have in the hive—viz., a colony of young bees, and, as a rule, a young queen; and if properly done they stand just as good a chance to survive the winter and build up early in the season as if they were hatched in the hive.

So far as adjusting themselves to new

surroundings, it has no ill effect whatever; and I wish to relate my first attempt in this direction.

An old experienced bee-hunter found a tree that he knew was useless, sold it to a man running a hardware store in the village of Hillsboro, and the tree was in sight of the village. The purchaser asked me to help him cut it, saying he would divide with me. I told him I did not care for a division, but he was welcome to the honey, and I would take the bees and empty combs. This was highly satisfactory to him; and when we cut it and opened it up there was a little bunch of bees and a nice young queen. I actually believe a quart cup would have held every bee (though we might not have been able to get the queen in). They had two pieces of comb, a little larger than my hand, which had been filled with brood, though all were hatched. There was no honey. *

The purchaser sat there on the little log, about ten inches in diameter, looking at the contents, and finally said, "Well, Elias, you know what the contract was; help yourself."

To show that I was game I proceeded to drive the little yellow-banded fellows into my box, and picked up the two pieces of comb, and away we went (on Sunday at that as that was the only time he could get away).

When I reached home I prepared a hive—I think with four frames of honey taken from an upper story, and the way those little fellows took possession was not slow. I took them to my yard, two miles from the tree, and they went into the cellar with the rest later; and when brought out in the spring they were as bright as the day they were put in.

They built the hives up rapidly, and were a nice colony when clover was ready, and at the close of basswood I extracted 100 lbs. of honey from them, and they had plenty for winter, but they did not swarm.

Now, come on, brother bee-hunters, who don't rob the bees and leave them to starve in the woods. Let us settle this question once for all.

Union Center, Wis.

[Perhaps our statements referred to in the foregoing were rather too sweeping; but we had in mind advice for beginners rather than for experts. We consider our correspondent an expert in taking bees from trees, and we believe that he can do what many others should not attempt to do along this line.—ED.]

ORIGIN OF ALBUMEN IN HONEY

Based on a lecture by Dr. Langer-Graz

BY J. A. HEBERLE, B. S.

About 17 years ago, French and German scientists, by experiment and extensive studies, worked out a method of different origins. In order to understand clearly what follows, it is necessary to describe briefly some of the methods.

If into an animal a dilute solution of albumen, for instance from a hen's egg, be injected a few times, the blood of this animal undergoes a very subtle change. If blood from this animal is taken, and, after coagulating, the thick part separates, there remains an almost clear solution called serum. Through the injection the serum has acquired the peculiar property of giving a precipitate with a dilute solution from the albumen of a hen's egg, but not with albumen from other sources. It may be mentioned that the serum obtained in the above-mentioned case will not act uniformly with egg albumen from various birds. With some egg albumen it will fail to give a precipitate if the dilution is 1 to 100, 1 to 200, or 1 to 1000; while with the albumen of the same source that has been used for injection it will give a distinct precipitate if the dilution is 1 to 10,000, 1 to 50,000, or even greater. The nearer related the birds are to the one from which the egg albumen was used for injection the more dilute may be the solution of the egg albumen and still give a precipitate. This biological method furnishes the only means to decide the derivation of albuminous bodies, and is used in food analysis and by court chemists. By this method blood spots, even if old and dried up, can be positively identified, whether from the human body or lower animals.

Prof. Langer began to use the biological method for the critical examination of honey in 1902. At the same time, and independently of him, von Riegler, of Budapest, worked on the same problem. Prof. Langer used albumen derived from honey, while Riegler used a dilute solution of honey for injection. The obtained serums gave precipitates with dilute solutions of honey. The results of several years of study and experiments were published in the *Archives of Hygiene*, 1909. Prof. Langer has determined that the albumen in honey is derived from the bees. Animals that have been treated with albumen derived from honey furnish a serum that gave a precipitate, not only with honey albumen, but also with watery extracts from the heads of bees, the larvæ of bees, of bee-bread, and with diluted chyle. Animals treated (injected)

with watery extracts of the heads of bees furnished a serum which gave a precipitate with honey albumen. These reciprocal reactions pointed to the presence of a uniform albumen in honey, the heads of worker bees, larvæ of bees, bee-bread, and in chyle.

Prof. Langer's endeavor to prove the presence of albumen of vegetable origin in honey by the biological method was not successful. He recommended a detailed method for the quantitative determination of albumen in honey, and asked that it be thoroughly tested. Two scientists have reported, and the results obtained agreed with his. Especially valuable was the report of Dr. Thoeny of the Swiss health office.

Dr. Kuestenmacher, in 1910, gave it as his opinion that the albumen in the honey comes from pollen. According to his idea, the albumen of the pollen is dissolved in the pollen-stomach, and diffuses partly through its walls, and so becomes chyle, and part of it (the albumen of the pollen) gets into the honey. The mistake of Prof. Langer, writes Dr. Kuestenmacher (that the albumen in bee-bread gets into it with the saliva of the bees) I need not refute, because I have shown elsewhere the principal parts of which pollen consists, exclusive of saliva.

Prof. Langer was much interested, and either wanted to prove the assertion of Dr. Kuestenmacher (that the albumen in the honey was derived from the pollen) or disprove it. He gathered pollen himself from the hazelbush, and made a watery extract from the whole pollen as well as from pollen after triturating it with fine sand. With these dilute solutions rabbits were injected, so he obtained a pure pollen (anti-serum). This gave a precipitate with a very dilute hazel-pollen extract with other pollen extracts, only in more concentrated solutions; but it gave no precipitate with honey albumen. Dr. Kuestenmacher claims that honey albumen is a pollen albumen. If that were so, a serum obtained by injection with honey albumen would give a precipitate with pollen albumen; but Prof. Langer never succeeded in obtaining a precipitate under these conditions.

According to the results of his extensive experiments he concludes that the mistake about the origin of albumen, at least of the biologically tangible albumen in honey, is on the side of Dr. Kuestenmacher.

The experiments of Dr. Langer force one to the conclusion that the albumen in honey is derived from the bee.

Kempten, Bavaria, Germany.

KOOTENAY BEEKEEPERS' ASSOCIATION, BRITISH COLUMBIA

BY W. J. SHEPPARD, HONORARY SECRETARY-TREASURER

A well-attended and enthusiastic general meeting of the newly formed Kootenay Beekeepers' Association, the first one of the kind to be organized in British Columbia, was held at the City Hall, Nelson, Nov. 27, for the purpose of electing officers and passing a constitution and by-laws. The meeting was also a thoroughly representative one, beekeepers from many of the outlying districts of the east and west Kootenays and boundary, the territory covered by the association, being present.

It has been recognized for some time that, in order to stimulate the beekeeping industry, and assist beekeepers in disposing of their honey, a system of co-operation has become absolutely necessary. Since honey of uniformly good quality in any quantity is capable of being produced in this section of the Province it could not be expected that it would be possible to dispose of it at remunerative prices unless a uniform system of putting it up for market could be provided. The beekeepers have also had considerable difficulty in the past in obtaining bee-supplies, owing to heavy freight rates and other causes, and also to get hives suitable to the climatic requirements of this region. Thousands of fruit-trees have been planted all over the territory during the past few years, and for this reason alone the keeping of bees has become essential. It is hoped, therefore, that the association will be able to accomplish useful work. That the movement is appreciated can be gauged by the fact that nearly half the beekeepers in the territory have already become members and paid the annual subscription of \$1.00.

The objects of the association as set forth in the constitution and by-laws adopted at the meeting are as follows:

The objects of the association shall be to promote and encourage the keeping of bees and the most suitable methods for their profitable management.

To assist members of the association in disposing of their produce to the best advantage by the adoption of uniformity in its "getup" for market, and the provision of a special distinctive honey-label, for the use of members only, which should ultimately tend to be looked upon by the purchaser as a guarantee of excellence and purity.

To obtain the most advantageous terms for members in the purchase of bee-supplies.

To promote and regulate local exhibitions of honey and other bee products, and arrange for the competent judging thereof.

To advocate the more general growing and cultivation of nectar-yielding trees and plants, such as linden or basswood (*Tilia Americana*), alsike clover (*Trifolium hybridum*), etc.

To aid in the dissemination of reliable and practical information with regard to the beekeeping industry, and further its progress in every way possible in the interests of the members.

The following officers were unanimously elected for the year ending September 30, 1915:

President, G. Fleming, Nelson; vice-presidents, James Johnstone, Nelson, and Major-General Lord Aylmer, Queens Bay; honorary secretary-treasurer, W. J. Sheppard, Nelson; executive committee, J. J. Campbell, Willow Point; Mrs. Casler, Nelson; J. Hyslop, Nelson; C. G. Johnson, Nelson; W. H. Rixen, Nelson; W. J. Mohr, Nelson; J. Blinco, Creston; B. Lockwood, Fruitvale; E. Alpaugh, Kaslo; R. E. Plewman, Rossland; J. H. Vestrup, Nakusp; H. W. Collins, Grand Forks; H. G. Slater, Robson; T. S. Gill, Cranbrook; G. F. Attree, Queens Bay; Auditor, J. D. Kerr, Longbeach.

White-haired Beesfolk

BY GRACE ALLEN

On a vacation ramble among the Tennessee hills more than thirty miles from a railroad, we came upon this charming couple, aged seventy-six and sixty-six respectively. In an orchard on their farm were about fifty stands of bees, in old-fashioned "gums."

In their cottage yard we found them,
Back among the trees,
White-haired befolk on a hillside,
With their countless bees
Humming happily around them,
And a quiet calm
Like an ancient benediction
Or a psalm.

Now when crowded days come bringing
Tasks that never cease,
We recall the gentle befolk
With their steadfast peace,
And we seem to hear a singing
On a far-off hill,
Where our spirits pause and listen,
And grow still.

Heads of Grain from Different Fields



The Backlot Buzzer

Fall negligence and wide entrances only lead to winter tragedies.

Report of the Minnesota State Inspector of Apiaries

St. Paul, Minn., Oct. 10, 1914.

The Hon. A. O. Eberhart,

Governor of the State of Minnesota.

Dear Sir:—The Inspector of Apiaries herewith submits his fourth annual report, as required by law, and shows:

Number of apiaries inspected, 374; number of hives inspected, 6975; number of apiaries found diseased, 33; number of hives found diseased, 197; number of apiaries given treatment, 27; number of apiaries reinspected, 24; number of hives found incurable and destroyed, 47; number of empty hives disinfected, 25; number of box hives transferred to movable-frame hives, 13.

The above apiaries were found in the following counties: Benton, Blue Earth, Carver, Chisago, Dakota, Faribault, Fillmore, Goodhue, Hennepin, Houston, Le Sueur, Meeker, Pine, Ramsey, Rice, Sherburne, Stearns, Wabasha, Waseca, Washington, and Wright.

In my last report I discussed the discovery and treatment of "foul brood." I shall, however, make my report for this season as brief as possible, showing mostly the work that my deputies and I have accomplished.

The bee industry in the State of Minnesota has been nearly a total failure this year, the spring having been unusually wet and cold. There are a few places showing surplus honey, but in the majority of

apiaries feeding has been necessary. This state of affairs makes it very unpleasant for both the bee-keeper and the inspectors.

I am pleased to say that the treatment for foul brood has been a great success. We have worked hard to stamp out this disease, although we have encountered many difficulties in so doing. Permission to inspect several apiaries has been refused me this season at first, but a little patient instruction won over the beekeepers. The State law provides, of course, for compulsory inspection, but sometimes it is a little hard to make the keeper understand its benefits.

We certainly have a good law in this State. I have received requests from bee inspectors and agricultural colleges all over the country, asking for copies. The beekeepers of Minnesota have reason to be proud of this fact.

I expect to see a better honey crop next year, as conditions look very promising all over the State at this time.

Respectfully submitted,

J. ALF. HOLMBERG,
State Inspector of Apiaries.

Bees Come to Montreal as Stowaways

The record for freak stowaways belongs to the steamer Montezuma, which made port on the morning of July 22, with a good swarm of bees on board. Italian bees they were, and it was across a belt of salt water four miles wide the busy workers came when they decided to leave the European field and seek the gardens of the New World. When they arrived on board the big cargo boat, three weeks ago, they were hospitably received by Chief Engineer Stanley. They swarmed around one of the boat davits, on the after deck, where Mr. Stanley hived them in a soap-box. Since that day the bees have worked like Trojans. Their diet has been sugar and water, and whatever jam they could purloin from the ship's galley. On the warm days they were all over the ship. Mr. Stanley states that several scouts have gone out to investigate the neighborhood, in spite of the cold. When the sun comes out they will travel further afield, but no fear is felt that they will swarm off, as they seem to be very comfortable.

The bees will make the return trip in the same box, and then will be sent to Engineer Stanley's home in Wales. Mr. Stanley states he has not been stung during the voyage; and when showing the hive the bees walked all over him.

The Montezuma is the largest cargo boat running to Montreal, having a full capacity of 12,000 tons. Three and a half years ago she broke the Canadian record for immigrants, carrying 2618 in one trip to St. John's. Her cargo is general from Antwerp. At the time the Gotthland, on the Scilly Islands, ran aground, the Montezuma was not far behind, and was one of the vessels to respond to the S. O. S. call.

Beauharnois, Quebec, Can.

A. SASHTON.

The Effect of the War on Honey Prices in Scotland

I am in the best clover district that can be had, but I am going to a poor clover district, but one where there is miles of heather. It is only a year, now and again, that it is possible to get a big yield of heather honey, and 1914 was such a year.

The war has been greatly against the selling of honey. Shops are not buying nearly as much, for they have no one asking for it. The price has been very low.

JAMES SMITH.

Drungans, Newabbey, Dumfries, Scotland, Nov. 9.

Ventilated Coat Sleeves

In the sketches herewith I illustrate a ventilated wristlet, or cuff, made of wire fly-screen, connecting the gloves to the sleeve of the coat, or connecting the gloves with gauntlets, to enable the wearer, when handling vicious bees, to enjoy cool arms and hands in consequence of the free circulation of air about the bare wrists. The wire-screen wristlets protect from the stings of the bees by being held away from the bare wrists half an inch or more by the half-inch spiral coils of wire soldered or substantially fastened to the wristlet, as shown in Figs. 3 and 4.



Fig. 1

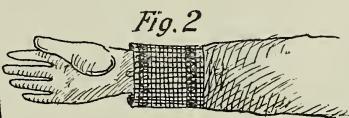


Fig. 2

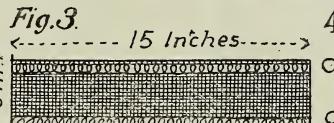


Fig. 3

15 Inches

4

Fig. 3 shows the wristlet straightened out flat with the half-inch spiral coils of wire attached in the best shape for sending through the mail.

Fig. 1 shows a work coat fitted with ventilated wire-screen wristlets or cuffs. Fig. 2 shows a gauntlet glove similarly fitted.

I have used a coat fitted with wire-screen wristlets or cuffs as shown in Fig. 1 for the past several years when handling vicious bees during hot dry weather after the end of the honey-flow, and find it immensely more comfortable than a coat without them, having the gloves sewed directly to the sleeves of the coat.

Dehesa, Cal.

R. J. KRAUSE.

An Outdoor Colony Put in a Hive Nov. 15

A man while hunting, Nov. 4, near my apiary, saw four pieces of comb on an oak-tree, and found a swarm of bees on a little bush about 30 feet away from the oak. It was a cold night, and the tree stood by itself in an open field. The bees left the combs to go to the bush, no doubt to get out of the wind.

On Nov. 5 I hived the bees and gave them combs of honey. The combs on the limb of the tree were about eight inches across, while one was smaller. This is the first time I ever hived a swarm in November. Last season, which was very dry, with 17 colonies of bees I secured about 800 pounds of honey, mostly extracted. My apiary is at Remington, Va., and I work in Washington, D. C., 57 miles away, so that I do not see my bees in the summer oftener than once in every three or four weeks. I had no swarm in 1914. I keep my queens clipped.

Washington, D. C.

F. TAYLOR THOMPSON.

Bees on Shares or for Rent

I desire some information concerning what is considered as a fair and safe proposition to make to the owner of an apiary for its rental.

Houghton, N. Y., Nov. 28.

H. R. SMITH.

[When bees are put out on a rental basis, or on shares, the party who furnishes the bees receives half the honey and beeswax and all the increase, while the party who furnishes the labor receives half the honey and the beeswax, but no increase.

If he participates in the last mentioned he is inclined to run the bees for increase and not for honey. He will, therefore, keep the increase down as much as possible and run the whole for honey. For fuller particulars you are referred to "Bees on Shares" in our A B C and X Y Z of Bee Culture.—Ed.]

A 20 x 20 Thirteen-frame Hive as Standard

A subject of especial interest is that of a larger hive, under discussion in the last two numbers of GLEANINGS. I believe that honey-producers quite generally are arriving at the one opinion that the ten-frame hive is too small. The eight-frame is not worthy of mentioning as a beehive. It may do for a home for a nucleus for a short time. I believe that the eight-frame hive is the direct cause of excessive swarming in this locality. I believe that a standard size should be agreed upon, and manufactured as a standard by the supply-houses. This, perhaps, would be hard to agree upon, as at present there seems to be a great diversity of opinion. To my

mind it seems that the square hive, 20 x 20 inches, containing 13 L. frames, would make an ideal standard hive. True, many of our best queens under proper care would fill a larger hive; but with this hive it would not require any great amount of manipulation to keep ahead of the most prolific queen.

In the past few years more than half of my queens under stimulative feeding (one-half pint warm sugar syrup each evening from the close of fruit-bloom until the opening of clover bloom) have filled from fifteen to twenty L. frames with brood before the clover bloom opens. What we want is a hive that will provide plenty of room for breeding to the limit of their strength, assist in curtailing swarming, provide a good honey-producing hive, and at the same time prove a good winter hive without excessive manipulation. This 20 x 20 square hive, it seems, will strike a happy medium for breeding, honey production, and summer.

For winter, furnish it with a telescope top ten or eleven inches deep, and large enough to allow half-inch packing on all sides and a heavy packing on top under cover. This, I believe, will make an ideal hive for outdoor wintering. While brother Hand makes a good plea to cut out excessive manipulation, it seems to me that his sixteen-frame hive with an eight-frame inside for winter, with sixteen-frame super added, requires about as much manipulation as any plan I know of in use or advocated by any one else.

Removing the queen together with two frames of brood at the beginning of the honey-flow, to prevent swarming, works very successfully in preventing swarming, giving a good honey yield and an increase of 100 per cent with a ten-frame hive.

Urbana, Ohio.

O. J. JANES.

Sections Stamped with Too Low a Weight

We were much interested in reading the article on page 221, Dec. 1, on the net-weight law as applied to the comb-honey business. Both your comments and those of Mr. R. A. Burnett, of Chicago, meet our views. We think that if the beekeepers would take a little more pains and very little more labor they could comply with the law, and the results would be more satisfactory to them and to the dealers. As Mr. Burnett says, "make the see-

tions more equal in weight in each case." For instance, we handled a car of comb honey this fall in which there was entirely too much difference in the marked weights of the sections and the actual weights. We found sections marked 8 ounces when they actually weighed on the scales from 13 to 15 ounces. This was the way with the majority of the cases in the car. If these sections had been marked 12 or 13 ounces, the law would have been complied with, and the honey sold for more money. About the first question our customers ask us when we offer honey for sale is, "What do the sections weigh?" We open a case, showing a section marked "8 ounces," and the customer says, "Too light weight;" consequently it is difficult to get all the honey is actually worth if it had been properly marked. Eight ounces complies with the law all right; but the seller gets less for the honey than if it were marked correctly.

We think that this is really an unnecessary law, and the benefits the beekeepers and the consumers will gain will not be equal to the expense and labor, and the consumer will pay just as much or more for the honey; but it is the law, and all concerned must make the best of it.

C. C. CLEMONS PRODUCE CO.

Kansas City, Mo., Dec. 4.

Binding Magazines with Nails

No doubt many of your readers feel an interest in saving copies of *GLEANINGS* for reference, but do not wish to go to the expense of buying binders or having them bound. In the following method I find a good and cheap way to keep them, and have them always arranged for ready use. I find that twelve numbers, or half of the year, make about the right number for putting together. Select these and make the backs and bottom edge even by holding the lot edgewise on the table; also make sure that you have them arranged properly.

Now use eight nails of the size for nailing frames together, also eight small pieces of oilcloth or thin leather about $\frac{1}{2}$ inch square. I find that oilcloth doubled to make the size is best.

Drive the nails about $\frac{1}{4}$ inch from the back edge of the bunch of numbers selected, four to each side, making use of the oilcloth pieces to prevent the heads of the nails from sinking into the paper and tearing out later.

Four of these nails will lack just a little of going through, and the four driven from the other side will make the binding complete, so that you will have your numbers easily bound, and they will not come apart.

This will also apply to the other bee-journals; but I find that the twelve numbers, or full year, can be put together.

Shellman, Ga.

D. W. HOWELL.

A Bid for National Association Advertising

Mr. Editor:—Judging from quite a number of letters we have had from beekeepers in various parts of the country we imagine that, when the National Association meets in February, there will be some discussion about advertising, as there has been for years, and especially as to the use of a page of reading-matter relating to honey in the *American Grocer* each fourth week during one year—13 times—to show grocers that they can sell more honey.

The writer for a long time has been firm in the belief that the consumption of honey in the United States might be largely increased, and a good point to start with is the grocery trade—not that the *American Grocer* covers the whole fraternity, but it is the oldest (and we believe it to be the most carefully read) paper of its class—one eminently worthy of the support of the National Association. The cost of this page per member of the Association will be

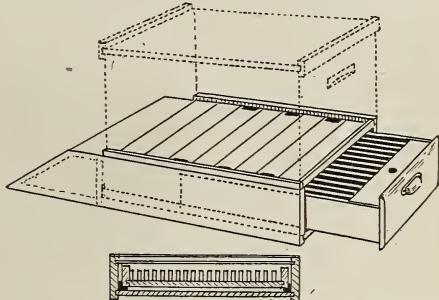
a mere bagatelle—so little, indeed, that an outlay five times as large would not be burdensome, and thus other publications might be used too. If the National Association frowns on the use of this journal, we believe there are individual beekeepers who will use the space—being willing to place the whole burden on their own shoulders—just as in some churches some "pillars" seem willing to "pay the freight" for the benefit of the whole body. I should like to have the opinions of your readers as to this project. The cost for the 13 pages will be \$30 for each insertion. If we may be trusted to do so we will get up the matter here, though we by no means insist on doing the work.

THE AMERICAN GROCER,
per F. J. Root, Adv. Manager.

New York, Dec. 9.

Bucher's Drawer Feeder

I am sending a sketch of a feeder. I do not know that it is new, but it is the most satisfactory of any of the different feeders I have tried. The case is made the width of the hive, and three or four inches longer, to provide an alighting-place. There is a bee-space left all around the drawer inside the case so that no bees can be killed in opening and closing the drawer. The drawer is provided with thin strips spaced about $\frac{1}{2}$ inch apart to prevent bees from drowning. Of course the depth of the drawer will determine the amount of feed it will hold. If a strip with a hole for pouring syrup is fastened against



the drawer end, flush with the top of the sides, with wire screen tacked over the hole on the under side of the strip, no bees can get out while feed is given.

As an experiment, on June 13, 1914, we took an old box hive that had cast a swarm about 17 days previously, and drummed the bees out, making sure of the queen, then dumped them in front of the entrance of a new hive filled with full sheets of foundation, except one frame of honey (our honey-flow had ceased at that time). The old hive was then set close to the rear of and connected to the new hive with a tube and Porter bee-escape in such a way that the remaining bees in the old hive on coming out were compelled to pass through the tube into the new hive. In three or four days practically all the bees were in the new hive. Then they were set over the feeder, and their stores fed back by simply filling the drawer with the old combs. When the first batch was clean, the drawer was re-filled and so on. In a short time those bees were in a new hive, with new straight combs, without the disagreeable mess of trying to fit old crooked combs in frames, and a poor job in the end.

Littlestown, Pa., Sept. 15.

C. F. BUCHER.

The Net-weight Law a Nuisance

The net-weight law has caused me no end of trouble. I sent for three rubber stamps, and marked all my sections that weighed $12\frac{1}{2}$ oz. or more. However, R. A. Burnett, of Chicago, says that every section weighing within an ounce should be cased

separately. This would mean that I would have to have several more stamps to mark the different sections. If one case has its sections marked 12½ oz., and another 14 or 15 oz., I am afraid that the case marked 12½ oz. would not bring the price the other would; yet the one marked 12½ oz. may be No. 1 comb honey.

Plum City, Wis.

H. E. LUEBKER.

Beekeeping in Texas

We began work about the first of March, going through the colonies which had come through the winter in fine condition on the summer stands. We found many of the brood-chambers so full of honey that the queens had very little room to work.

We take out one or two frames of honey and put foundation in place of the honey. If we have any weak colonies that seem to need help in the beginning of spring we take honey, and sometimes brood from the strong hives, and give to the weak ones; then about the time the huajilla is beginning to bloom we put two weak colonies together, one on top of the other with a newspaper between them, so we have all colonies *strong* at the beginning of the honey-flow.

We store the frames of honey taken from the hives in early spring in the honey-house; and as we hive the swarms we give each swarm one or two frames of honey. We always wait until near night to do this work, so we have no trouble with robbers. Our bees usually gather enough honey from the persimmon and prairie flowers for brood-rearing through the early spring. The huajilla is the earliest bloom that we get any marketable honey from. Then comes the catclaw. These are the main sources for our crop in this country. Some years we get some honey from horsemint, whitebrush, and some few other flowers that yield very good honey in early summer.

We had a fine huajilla bloom last season. Just as that was giving out, the catclaw bloomed—the finest crop of bloom we ever had; but the rainy weather set in and cut the crop from that source short.

We got 12,000 lbs. from our two apiaries—185 colonies in all—mostly bulk comb honey. We have about 3000 lbs. of that on hand yet.

PREVENTING GRANULATION OF BULK COMB HONEY.

We heated the extracted honey that we packed our comb honey in. We heated it very slowly, and kept it hot a long time. We did not let it get to the boiling-point and did not spoil the flavor nor turn it dark, and none of it has granulated so far.

We had a broomweed bloom last fall, and had no cold weather, but a good deal of rain. The hives filled up rapidly, giving a crop of that off-grade honey to extract. It is worthless, as there is so much of the better honey on the market.

We went to the apiary a few weeks ago and put some foundation in the brood-chambers—on the average one frame to the colony—so that we would have more combs to hive swarms on in spring instead of so much of the off-grade honey.

Del Rio, Tex., Nov. 26. MRS. C. DISHMAN.

Queens and After-swarms

Last season my whole yard swarmed at once, about 150 colonies in ten days. Much mixing occurred. I feared there would be many queens missing for that reason, and because there was a pest of bee-martins. The swarming took place during a heavy honey-flow from alfalfa. There were many after-swarms, having from two to six well-developed virgin queens. I proceeded as follows: Putting a few queen-cages in my pocket, with the ends closed with wads of cloth, I took a dishpan to where the swarm had settled, and shook the bees into it. I picked out the virgins and caged them, shaking the bees about as necessary, then took the pan to the middle of the yard and threw them into the air. I mated the vir-

gins in Rauchfuss nucleus boxes holding three common comb/honey sections, and when inspecting for fresh eggs I introduced them into the queenless colonies, which were 15 in a total of 270 in the apiary.

I do not claim this is the way to raise the best queens, though I fail to see in what way they are inferior to any of those left in the hives after natural swarming. It did, however, take care of the queenlessness, and also put the bees of the after-swarms back where they belonged.

Zapata, N. M.

H. H. BROWN.

A New Way to Stop Robbing

Find the colony which is *doing* the robbing, and cover it over with old carpet or burlap, or grass or weeds. Leave its entrance wide open and tuck the sacking down close under the hive so those out will have much difficulty in finding their way into the hive. May be they will not get in. There will be something doing around that hive within a few minutes. Leave it that way for an hour or two. The colony will come to no harm, even on the hottest day here.

Also go to the colony being robbed, and smoke slightly and close the entrance for a minute and pound the hive; then open the entrance for a few minutes. The robbers will all leave quickly. Then contract the entrance to two bee-spaces and leave for a day or two, and you will have no further difficulty. This method has never failed here. I have never seen this in print. May be it will help some one.

Vincent, Ohio.

W. S. BASIN.

Terrible Fire in California

On Nov. 19 we had one of the worst fires here in the mountains ever known. It burned a strip 5 miles wide and 30 long. The people had to run for their lives. I lost 90 stands of bees, my bee-house, eight-frame extractor, gasoline-engine—in fact, every thing I had. I was living in my honey-house, and I even lost my bed and bedding, cooking utensils, 367 empty hives and frames. Besides mine there were two houses and a barn burned and six head of horses, and five deer.

Arroyo Grande, Cal., Dec. 9.

M. D. PRICE.

[GLEANINGS extends sympathy. A disaster of this kind is terrible indeed.—ED.]

Queen Accepted after Cells were Started

I have had good success with direct introduction of queens with smoke, although I had three failures which I cannot account for. I had also a rare experience. To a populous colony of cross hybrids in a two-story hive I introduced a queen. On the fourth day I examined the colony, and found numerous cells started. I grafted them all. On the third day I examined to see how many accepted. Not one cell was in existence, and I found the queen introduced all right.

C. M. CARMONA.

Trinidad, British West Indies.

Bee Martins—Do They Do Damage in a Honey-producing Yard?

Would you kindly advise whether it is advisable to do away with martin-houses near an apiary? We love to have these birds on our fruit-farm; but I am not sure that they may not do serious harm to our bees. Some claim they eat drones only.

Chicago, Ill., Nov. 17.

T. H. HOLMES.

[There is a bird, known as the bee-martin, that kills bees and queens; but unless you are rearing queens in considerable numbers, we do not think you need to pay any attention to the birds, as the few bee-martin houses that you have there will do no appreciable damage.

Yes, these birds eat drones; but they are also fond of queens.—ED.]

A. I. Root

OUR HOMES

Editor

But I say unto you, that ye resist not evil.—
MATT. 5:39.

Pray for them which despitefully use you, and persecute you.—MATT. 5:44.

Some of you may, perhaps, feel like saying, "Why, brother Root, you have had the above text over and over. Can't you think or talk about something else?" No, friends, I cannot think or talk about something else when this same "Gospel of Christ Jesus" is still such an "unexplored region" as I told my good mother years ago.

About the first thing on reaching our Florida home was to see if the Sears automobile was in good trim after standing unused six months in the auto house. It went off promptly on almost the first cranking. Have you forgotten about the mischievous boys who vexed and annoyed me two years ago? Well, if you have, the boys haven't. Just as soon as I stopped before a store, two of them, with mischief in their looks, pounced on my auto, began pinching the tires, blowing the horn, and pulling and twisting almost every thing movable. The impulse to forbid them touching my property was almost irresistible; but (thank God) I had learned some lessons. I took no notice of them, and started to go into the store; but as I neared the door and heard them rattling things the temptation was so great to look around and *see* what they were at I could hardly stand it, and could only mentally groan in distress, "Lord, help!" I think I added, "O Lord, give me faith to believe *you* will not only take care of my machine but of my poor self also while I am *trying* to follow your commands."

Years ago, when I was laboring in the Medina jail with my poor friend "Fred," he said that, while this new doctrine might be right, it "went awfully agin the grain," and I realized it.

When I came out of the store they had stopped meddling (my prayer was promptly answered, please notice), and I said, as if nothing had annoyed me:

"Boys, can you tell me where Roy Parker's place is?"

"Oh, yes! we'll show you. Sha'n't I crank your machine?"

As he was a small boy, and hardly equal to the task, his companion laughed at his apparent failure; but I gave him some instructions; and when off it went I asked them to get in and ride with me, and we parted the best of friends.

Dear friends, the above is only a trifling incident. Why should I take pains to tell

it at all? Because it embodies a great truth. These boys were simply wanting something to do. I succeeded in diverting them from their mischief into something useful. They are a fair type of boys all over our land. In our recent temperance crusade the question was asked, "Which is of more importance—the *revenue* or our boys?" Also, "Shall we pay the revenue by *sacrificing* our boys?"

A year ago two of my auto tires were punctured while my machine was left some time on the street, and how did I know that my tires would not be punctured again while I was in the store trading? It *did* occur to me; but I answered Satan that saving these two boys was of far more moment than many "tires" or even a *whole automobile*.

Very soon after our arrival a boy's face on the street startled me, and I soon recalled it was the boy who (by God's providence) I saved from a watery grave.* He is now bringing me every evening the Bradenton daily paper. In answer to my prayer, God gave him back to life, and a further responsibility rests on my poor shoulders. Is it not of far *more* importance that I win him to Christ Jesus and *everlasting* life? Whenever I meet him his face appeals to me as if there exists a sacred relationship between us. Does it not behoove me to feel a greater interest in *all* the boys because of that incident?

A word more about being in *haste* to "resist evil." Do we who are church members remember as we should that "a soft answer turneth away wrath"?

Mrs. Root and I were once riding with our old pastor, Rev. A. T. Reed. The livery horse balked. Mr. Reed said, "Wait a minute." He jumped out of the buggy, unbuckled the "belly-band," and quickly buckled it up again, "chirrupped" to the horse, and off we went all right. In answer to our surprised request for explanation for such an absurd remedy he replied:

"My act simply diverted the attention of the horse from his ugly spell; and when I got back into the buggy and told him to go he had forgotten about being contrary."

* A few weeks ago I attended a moving-picture show that is attracting much attention just now—John Barleycorn. It seems "John" became discouraged in the effort to break away from his foe; and while partly intoxicated he attempted suicide by jumping off the dock. His struggle in the water, and failing strength as he made his last faint struggle when he rose the last time, were so real it recalled the incident of the drowning boy so vividly that I involuntarily started before I recalled *why* the scene affected me so.

Are we not much like the dumb brutes in this respect? The boys were surprised (and disappointed) because they did not get the scolding that would naturally follow; and finally (like the horse) they forgot about the mischief they had planned. When you learn to love your enemies you will have the "happy surprise" of finding they are enemies no longer, but friends.

I have just read in the daily of two men who got into an argument about the war. It ended by both drawing revolvers and riddling each other with bullets. Will any one explain what was settled or accomplished by this silly and wicked act? When I was a boy, skeptics made fun of the stories in the Bible about being "possessed of devils." Were not these two men *possessed of devils* to do this? and would it be so very preposterous to suppose *whole nations* are *just now* in enthrallment of "legions of devils"? How does it come these two men had revolvers, defying the law against concealed weapons? and does not the incident point out the worse than folly of equipment for war that runs up into *many millions*?

HOMELESS BABES AND "BABELESS" HOMES.

On these pages I have often spoken of the efforts that are being made to save the babies that have been so long dying in infancy, and dying for want of intelligent and proper care. A few days ago an agent of the Ohio State Board of Charities spoke at our church about fifteen minutes just before the sermon. His business is to look up the orphaned babies of the State of Ohio, or babies that have no parents or relatives to give them proper care. That is one part of his business. The other part is to hunt up fathers and mothers who have no babies or little children of their own, and who are willing to take a child and give it proper care. Let me digress a little right here.

Somewhere in this big wide world is a boy eighteen or nineteen years old. When he was born his mother was unmarried; but his father was rich enough to hire her to "keep still;" and the baby was sent to an Ohio infirmary. Perhaps we had better call it an Ohio "poorhouse" on this occasion. When this boy got to be old enough to be of some use in chorng, etc., a well-to-do grasping farmer agreed to take him. I think he was "bound out" to the farmer, for that is what they called it then. Well, the agreement was that the boy was to have board and clothes, and a certain amount of schooling. My attention was first called to him when he was about fifteen years old.

He was strong, and able to do a man's work, and *had* been doing it. But he had no wages, and was sent to school so little, with so many interruptions, that his schooling amounted to about nothing. He ran away, as many another poor boy has done, and changed his name so his old "tormentor" could not find him without trouble. I consulted an attorney, and set the boy at work. He was so willing, and put in with such energy and vigor, that it really touched my heart. Well, so many cases of this kind have come to light by investigation, that the State of Ohio (may God be praised) has appointed a "commission" of men and women, first to visit the homes of those who are willing to take a child and see what sort of home it is, and what kind of people they are. Then at regular intervals the home is visited *again*, the child looked after and interviewed, to see if he has a fair chance. My friend, did you ever consider that every baby in our land, boy or girl, has a right to live and have reasonable care? The responsibility rests on you and me. From the moment a child is born under the American flag there is, thank God, a right invested in *him or her* to "life, liberty, and the pursuit of happiness;" and if the circumstances of the child's birth have not given him this fair chance, you and I are responsible for it. Please recall the words of the dear Savior when he said, "Inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me."

Of course, the speaker's talk that Sunday morning reminded me of the picture on page 76 of our issue for January 15th last. Dear friends, I have had no end of kind words for that article. If you have a copy of GLEANINGS handy, of that date, it might be worth your while to look it up; and after you have looked it up, read the letter below:

STATE OF OHIO,
BOARD OF STATE CHARITIES,
1010 HARTMAN BUILDING, COLUMBUS.

My dear Mr. Root:—I thank you for the courtesy you extended to me Monday, and also for your willingness to mention Ohio's children who are in need of mother love in your GLEANINGS. I am very much interested in the article you gave me which contained the story of the deserted baby. It reminded me somewhat of a little one whom I carried a long distance in my arms on the train (and who cried almost the entire distance). She had been picked out of an ash-barrel one January morning. A woman in the morning heard a sound that she thought was a cat. On examining the debris and garbage she discovered this beautiful little two-months-old baby nearly dead from exhaustion and neglect. The little one was placed in a beautiful Christian home, and has been legally adopted. The house she lives in to-day cost nearly \$40,000. She is a splendid fine little girl of fifteen, and has brought great sunshine into the lives of her foster parents.

I was also interested in your article concerning your trip from Florida with your wife. I think I

have a strange feeling of respect for a man of your age who speaks and writes so tenderly of his wife. Of course it ought to be the rule, but it isn't.

With best wishes for the success of your Christian and humanitarian work that you are doing in connection with your business, not divorcing them as some men do, I am

Yours sincerely,

C. V. WILLIAMS,

Director Children's Welfare Department.

Now, if any citizen of the State of Ohio

who has read the above knows of a baby neglected and uncared for, will he please notify the writer of the above letter? and if you are willing to *take* a baby, or know of somebody else who would do so, send the names to the same address. May God help us in our efforts to care for the homeless babies.

HIGH-PRESSURE GARDENING

DASHEENS UP TO DATE.

Our neighbor, Mr. Stanton, got a peck of tubers of us last April, from which he has raised ten bushels. On a part of his ground that was damp black muck he got a good full peck from only one hill, and this hill came from a single small tuber. After seeing the peck of tubers I came home and had Wesley dig one of *our* best hills, and we got a heaping *half-bushel*. How is that for reducing the "high cost of living"? Are they as good, and will they really take the place of Irish potatoes? There is a "draw-back" to the dasheen as food. Once in a while you get a hill that has the wild untamed "acridity." The government bulletin mentions this, you may recall, and recommends baking soda as a corrective. We, in our own home, have never got hold of such; but Huber and his wife had one hill of our raising that "stung their throats" quite badly. Mr. Stanton says they have also had one such experience, and the women folks since then are prejudiced against the dasheen; but as for himself he wants them *every* meal instead of Irish potatoes. He expects to plant his whole ten bushels.

There is just one other fault. When baked we occasionally get a tuber, or more frequently a corm that is tough and watery, and won't bake so as to mash up dry and floury. Sometimes a small part of a tuber, say one end, will be like this; but when stewed we have never noticed any such trouble.

Another neighbor, Mr. D. Abbott, a bee-keeper, has perhaps 100 bushels of fine matured tubers, and I would advise the friends who want seed to correspond with him. As for myself I still consider a nice baked dasheen (such as we have just had for dinner) as far ahead of any sweet or Irish potato.

So far we have not succeeded (so far as I recall) in getting any tubers to go across the ocean without spoiling. It seems to be because they cannot have sufficient ventilation in the mail. They go to California and other remote States, but not to foreign

countries. Now, while this is true I have dasheen growing in our garden, the tubers of which were sent me from South Africa. See p. 471, June 15, 1913. I cannot recall now how friend Thompson packed the tubers; but he may recall when he sees this, and let us know.

TREASURE ON EARTH, AND TREASURE IN HEAVEN.

I have a walnut-tree that is a very strange one. It is a cross between a franquette and an English walnut. This tree is 11 years old, and never puts forth a leaf until July 2 or 3, and then it will grow two or three feet of wood, and harden up the wood for winter so frost will not freeze it. It bore four nuts last year. We ate one, and found it finer than any nut we ever saw before. We planted the three remaining nuts, and now we have two little trees from the three nuts. Now, Mr. Root, would you like to have me send you one of these trees this fall?

I am doing some experimental work. I have a chestnut grafted on to a black oak. It bore chestnuts the second year after grafting. They are good, and the tree is full of burrs this year, and promises a large crop of nuts.

Let me tell you something else. You are the cause of me and my family going to church here; and now we have a nice Sunday-school, of which I am the superintendent. The people here have tried to break it up, but I am in it to stay.

Pine Grove, Cal., Aug. 13. GEORGE PRESTON.

Many thanks, my good friend, for the offer of a walnut-tree. In our Florida home, I have several walnut-trees, and perhaps you had better mail yours to me there, as the climate is more like yours in California.

May God abundantly bless that Sunday-school and its superintendent. Such work may not be treasures laid up on earth, but it is treasures in heaven that can never be taken away.

GREEN CORN; MAKING IT MORE DIGESTIBLE.

Friend Root—Did you ever use a corn-scratcher on your green corn? If you have never used one you would find a very decided improvement in the corn, and find it much more digestible, as you do not get any of the hulls of the corn. I do not remember seeing you mention it, so I concluded you had not.

Oregon City, Ore.

H. A. BLY.

My good friend, I thank you especially, as I have noticed green corn sometimes distresses me, and it occurred to me these tough hulls are difficult of digestion. I now recall seeing such a "scratcher," as you call

it, once, in the home of a relative. As I remember it was a little brush of sharp steel wires. Can any one tell us where to get the implement?

SWEET CLOVER THE SUBSOILER.

We clip the following from *Farm and Fireside*:

Sweet clover is one of the best miners we have. Few plants develop root systems equal to those of this plant. Judge Quarton said so when pointing in *Farm and Fireside* to the growth of sweet clover on his farm. But sometimes we need to see for ourselves. Grantham, of Delaware, has made a comparison. He says:

"A year ago sweet clover, alfalfa, and mammoth red clover were sown side by side in oats. Owing to the lateness of the season, and wet condition of the ground, the oats were not seeded until April. When the oats were harvested the sweet clover had made a growth of 18 inches, the alfalfa 10 inches,

and the mammoth red clover about 5 inches. On August 1 a number of plants of each of the legumes was dug up, care being taken to remove the roots with as little damage as possible. The dry, hard condition of the soil prevented the removal of the roots of the alfalfa and sweet clover to their full length. The sweet-clover roots were fully twice the length and size of the alfalfa roots. The root development of sweet clover during a period of ninety days, when grown with a nurse crop of oats, indicates the value of the plant as a subsoiler and its bearing on soil improvement.

The soil on which the legumes were grown is a clay loam, and produced 50 bushels of oats per acre this year."

Besides this evidence in favor of sweet clover we must remember that the sweet-clover roots, quick in growth as they are, are likewise quick to rot. Consequently they do not make the trouble that alfalfa roots do at plowing time, and some say they equal alfalfa roots as soil-enrichers. And yet sweet clover is not esteemed as is alfalfa. Why? Perhaps we have used neither of them as much as we should, and so do not fully appreciate either of these crops.

TEMPERANCE

"NATION WIDE" PROHIBITION NOT SO "DISASTROUS" AFTER ALL.

The following, which we copy from the Jacksonville *Times-Union* of Nov. 19, comes pretty near being the most convincing argument for absolute prohibition I ever came across. Can the Ohio Anti-saloon League find anything better to give the people in the present crusade than this? Just think of cutting off a "revenue" of *five hundred millions at one stroke, and in one day*, and instead of "disaster" great good came at once. Read the following:

COMPLETE PROHIBITION IN EFFECT THROUGHOUT THE RUSSIAN EMPIRE.

PETROGRAD, Nov. 18.—Actual and complete prohibition is in force to-day throughout the entire Russian empire; and not a drop of vodka, whisky, brandy, gin, nor any other strong drink is obtainable from one end to the other of an area populated by 150,000,000 people, and comprising one-sixth of the habitable globe.

In every foot of Russian territory the word prohibition is taken literally. It does not mean a partially successful attempt to curtail liquor consumption, resulting in drinking in secret places, abuse of medical licenses, and general evasion and subterfuges. It does mean that a vast population who consumed \$1,000,000,000 worth of vodka a year; whose ordinary condition has been described by Russians themselves as ranging from a slight degree of stimulation upward, has been lifted almost in one day to sobriety.

On that day, when the mobilization began, police-men visited every public place where vodka is sold, locked up the supply of liquor, which is almost pure alcohol, and placed on the shop the imperial seal. Since the manufacture and sale of vodka is a government monopoly it is not difficult to enforce prohibition; and from the day the shops were closed drunkenness vanished.

The results already are seen in the peasantry. They are beginning to look like a different race. Marks of suffering, the pinched looks of illness and improper nourishment, have gone from their faces.

Their clothes are cleaner, and both men and women appear more neatly and better dressed. Homes of the poor, formerly destitute, now present something like order and thrift.

In Petrograd and Moscow the effect is fairly startling. On holidays inebriates always filled the police stations and often lay about in the streets. To-day unattended women may pass at night through portions of these cities where it formerly was dangerous for men. Minor crimes and misdemeanors have almost vanished.

This miracle virtually has been accomplished by one man. He is Michael D. Tchelishev, a peasant by birth, originally a house painter by profession, then mayor of the city of Samara, and now a millionaire. Physically he is a giant, standing over six feet four inches. Although 55 years of age, his movements display the energy of youth; his eyes are animated, and his black hair is not tinged with gray.

In Petrograd Mr. Tchelishev goes about clad in a blue blouse with a tasseled girdle and baggy black breeches tucked in heavy boots. He offers his visitors tea and fruit.

Speaking to-day to a representative of the Associated Press of what he had accomplished for sobriety in Russia, Mr. Tchelishev said:

"I was reared in a small Russian village without schools. I picked up an education from old newspapers and stray books. One day I chanced upon a book which treated of alcohol. It stated that vodka was poison. I was so impressed, knowing that everybody drank vodka, that I asked the first physician I met if the statements were true. He said yes. I decided to take every opportunity to discover more about the use of vodka.

"At the end of the eighties there came famine in Russia followed by agrarian troubles. I saw a crowd of peasants demand from a landlord all the grain and foodstuffs in his granary, and I noted that every man who was taking part in this incident was a drinking man, while their abstemious fellow villagers had sufficient provisions in their own homes.

"At Samara I decided to do more than passively disapprove of vodka. At this time I was an alderman. Many tenants in my houses were working men. One night a drunken father in one of my houses killed his wife. Then I decided to fight vodka with all my strength.

"On supposition that the government was selling vodka for revenue, I calculated the revenue received from its consumption in Samara. I then introduced a bill in the city council providing that the city give this sum to the imperial treasury with the request that the sale of vodka be prohibited. This bill was passed. The money was offered to the government, but the government refused it.

"It dawned upon me that Russian bureaucracy did not want the people sober, because it was easier to rule autocratically a drunken mob than a sober people.

"That was seven years ago. Later I was chosen mayor of Samara, and subsequently elected to the duma on an anti-vodka platform. In the duma I proposed a bill permitting the inhabitants of any town to close the local vodka shops, and providing also that every bottle of vodka should bear a label with the word poison. At my request the wording of this label, in which the evils of vodka were set forth, was done by Leo Tolstoi. This bill passed the duma, but in the imperial council was amended and finally tabled.

"I then begged an audience of Emperor Nicholas. He received me with great kindness, and listened to me patiently. He was impressed with my recital that more revolutionary and social excesses were committed by drunkards than by any other class. He promised to speak to his minister of finance concerning the prohibition of vodka.

"Disappointed at the failure of my bill, I had abandoned my seat in the duma. It was evident the bureaucracy had obstructed the measure. Minister of Finance Kokovsff regarded it as a dangerous innovation, depriving the government of 1,000,000,000 rubles (\$500,000,000) yearly.

"While I lobbied in Petrograd the emperor visited the country around Moscow and saw the havoc of vodka. He then dismissed Kokovsff and appointed the present minister of finance, M. Bark.

"Mobilization precipitated the anti-vodka measure. The grand duke, remembering the disorganization due to drunkenness during the mobilization of 1904, ordered prohibition except in first-class clubs and restaurants. This order, enforced for one month, showed the Russian authorities the value of abstinence. In spite of the depression of war, the paralysis of business, and the closing of factories, the people felt no privation. Savings banks showed an increase in deposits. There was a boom in the sale of meats, groceries, clothing, dry goods, and house furnishings.

"The 30,000,000 rubles a day that had been paid for vodka were now being spent for necessities. The average working week increased from three and four days to six, the numerous holidays of the drinker having been eliminated. The working day also became longer, and the efficiency of the worker was perhaps doubled. Women and children who were seldom without marks showing the violence of husband and father, suddenly found themselves in an undreamed-of paradise. There were no blows, no rough treatment, and no insults. There was bread on the table, milk for the babies, and a fire in the kitchen.

"I decided to seize this occasion for a press campaign so far as this is possible in Russia. I organized delegations to present petitions to the proper authorities for prolonging this new sobriety for the duration of the war. This step found favor with his imperial majesty, and an order was issued to that effect. A similar campaign to remove the licenses from privileged restaurants and clubs was successful, and strong liquor was no longer of value anywhere in Russia.

"The second month of abstinence made the manifold advantages so clear to everybody that when we called upon his majesty to thank him for his recent

orders he promised that the vodka business of the government would be given up forever."

"NO MORE HEROIC REFORM MEASURE WAS EVER INTRODUCED BY ANY GOVERNMENT."

A friend in New York sent the following, but neglected to say what New York paper it comes from:

RUSSIA'S GREAT DRINK REFORM.

If the manufacture, sale, and consumption of whisky and all "hard" liquor were suddenly stopped in the United States—if the country's 2300 distilleries were put out of business by a stroke of the pen, and the Government's income of \$163,879,342 yearly from this source absolutely cut off—we should have a condition of things approximately resembling that brought about in Russia by the abolition of the vodka traffic. Yet even this parallel does not fully represent the revolution in Russia's drinking habits whereby 150,000,000 persons are affected at an annual cost to the Government of \$500,000,000 in revenue.

Doubtless no more heroic reform measure was ever introduced by any Government. It has remained for the absolute monarchy whose name is synonymous with oppression, but which yet anticipated our own free nation in liberating the serf, to give force to what is altogether the most remarkable temperance movement in the world's history.

Here is something more, from the *New York Times*:

But that Russia will profit in every way except that of immediate and direct income from such suppression of the use of vodka as is attained need not be seriously doubted. As always, too, the loss of revenue will be more than balanced by increased capacity to pay taxes, and possibly in the increased sobriety of its people the great empire will find more than compensation for its military expenditures of money and men.

France seems to be meditating like though less sweeping reforms, and hints of similar plunges into abstinence more or less nearly total are coming from other countries involved in the war. It all marks the world's new appreciation that alcohol and efficiency of any sort do not go together. This fact is now demonstrable by scientific tests of the most convincing sort, and it applies to war as well as to any other form of activity.

WHAT A QUART OF WHISKY MAY COST A COUNTY.

Since there has been such a talk about the loss of revenue if the saloons were ruled out, the following, clipped from the *New Republic*, may give us some light on the subject:

One of the citizens of Belmont County went to Bellaire some years ago and bought a quart of whisky, got drunk, and went out and killed a man. It cost the county about \$5000 to send the murderer to the penitentiary. The circuit court set aside the verdict, and sent the case back to the lower court for new trial. It cost the county about \$6000 more to land the man behind the bars at Columbus.

Two years later Governor Harmon pardoned the murderer. The fellow went right back to Belmont County and bought another quart of whisky, got drunk, and killed another man. It cost the county \$5000 more to send him again to the penitentiary. Once more the circuit court reversed the decision and sent it back on error for a new trial. The defendant asked for a change of venue, and the case was heard in Jefferson County. It cost Belmont

County approximately \$8000 more to send the man finally to the penitentiary for life.

Of course, the distiller who made the whisky which, in turn, made the murderer, was not punished in any way. Neither was the saloonkeeper who sold the man the whisky.

The reader can see from this one incident how the profits on that bushel of corn went glimmering, and the other fourteen quarts are yet to be heard from.

However, it may be that one other quart out of that same bushel of corn has gotten in its work in Belmont County, for a few months ago the papers over there announced that the brother of the man who cost the county so much money as the result of drinking two quarts of whisky, purchased a quart of the same stuff, got drunk, and killed a man. Quite likely it will cost about the same amount by the time the case is finally disposed of.

In addition to all the expense, five families of the county have been deprived of their breadwinners, and the taxpayers of Belmont County are far from unanimous in a desire to turn any more of their corn into whisky.

There are two morals that might be deduced from the above transaction. First, the folly of selling whisky for beverage purposes; second, the folly of having an "easy" Governor who may be led to pardon a man out after he has, at an enormous cost, been landed behind the prison bars for the safety of the community. The Governor doubtless thought that, if he would give this prisoner his liberty, he would profit by his lessons; but he demonstrated to that neighborhood, and to the *whole wide world*, for that matter, that his place, and his only fit place, is behind prison walls. And then, again, it would indicate that his craze for whisky and murder runs in the family. I do not believe in the pardoning business, especially pardoning out *criminals* guilty of crimes like those pictured above.

GOOD NEWS FROM ARIZONA.

On Nov. 3 we voted Arizona dry by 3891 votes. But we had a hard fight to win, as the wets worked very hard, and they sent out a large amount of literature, judging by what I received myself through the mail. I am sorry to hear that the grand old State of Ohio went wet, as that is my home State, as I was born six miles east of Lima.

I had the privilege of visiting your factory at Medina in Sept., 1911, and will say I enjoyed the visit very much, as all the men seemed willing to answer any questions that I would ask them, and they all treated me very nicely.

Buckeye, Ariz., Nov. 17. ALBERT J. ROSS.

A "WET" EXPOSITION; SHOULD IT BE PATRONIZED?

Dear Mr. Root:—I am a stranger to you, but you are not to me. My father has taken your paper for twenty years, and my grandfather took it from its first publication. We like your paper very much, especially the Home talk.

As you seem interested in the temperance cause I thought a little "dry" talk would be of interest. San Francisco went wet six to one—a very nice place to invite our friends to the exposition next year, isn't it? I am telling my friends in the East not to come. A man who lived there said it is no uncommon thing to find dead bodies floating in San Francisco Bay.

I am a girl eighteen years old. My father keeps bees, and I am much interested in them; also in the prohibition cause.

Corning, Cal., Nov. 6.

CAROLINE HUBERT.

Thanks for your suggestion, my good friend; but are not the temperance people somewhat at fault that California went so *very wet*? It is reported the drys tried to pass a law making it a penitentiary offense to purchase and drink California wines in one's own home. We, even in this fight, must be "wise as serpents and harmless as doves."

CIGARETTES, AND TOBACCO IN GENERAL; WHAT THE OHIO FARMER SAYS ABOUT IT.

We take pleasure in clipping the following from the *Ohio Farmer* of a recent date.

Government statistics show that during the year 1913 the people of the United States consumed cigarettes to the number of 14,530,486,200. This was an increase of 2,186,633,708 over the previous "banner year." Think of it! This is an average of 39,000,000 cigarettes each day, and the total value of all of these coffin-nails was \$72,781,626. One authority has estimated that it must have been necessary for 1500 boys to fall victims to the devastating habit each day, in order to keep up this terrific demand. It is also observed by sociological workers and students of the general question that the taste for liquor in a mild form is inspired by constant smoking, and the habit is thus responsible for many of the most serious woes of society. Dr. Dennis, of the medical school of Cornell University, states that "the tendency to beer-drinking is greatly strengthened by cigarette-smoking, because this habit becomes almost constant, causing a dryness of the throat and fauces, and hence irritating the throat." Another effect of cigarette smoking, we are told, is that it lands more boys in the police and juvenile courts than all other habits combined. One city magistrate testifies that out of 300 boys brought before him, charged with various crimes, 295 were cigarette-smokers. While it may not be true to say that every boy who smokes cigarettes acquires criminal tendencies, it is true, beyond question, that every boy or immature man who indulges in the habit to any extent suffers certain physical impairments that lessen his value as a worker, either with his muscle or his brain; and he is placing a serious obstacle in the way of his success by continuing the habit. The records of Harvard University have been cited to the effect that while over 83 per cent of the students use tobacco, for over 50 years no tobacco-user has stood at the head of his class. Smoking in any form does not do the smoker any real good, although it may soothe him and furnish him a certain amount of amusement and indulge a taste that has been acquired. It is less injurious to mature men than to young men who are just getting their development; and the boy who wishes to make the most of his career should refrain from tobacco.

May the Lord be praised that we have at least *one* agricultural paper that dares to come out like the above, not only against cigarettes but against tobacco in general, especially while it is true that so many men occupying prominent positions continue to set a bad example before the boys growing up all around them.